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SE-MON330 SOFTWARE MANUAL

REVISION 0-F-062415

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DISCLAIMER

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1. GENERAL

SE-MON330 is a PC-based application designed to access set-points, measured values, and trip records from the SE-330 Neutral-Grounding-Resistor Monitor, the SE-330HV Neutral-Grounding-Resistor Monitor, and the SE-330AU Neutral-Earthing-Resistor Monitor.

SE-MON330 (version 3.4 or newer) is compatible with previous and new revisions of the SE-330 series, using the RS-232 or mini-USB interface respectively.

The screen images in this manual are shown as connected to a new revision of the SE-330 series.

Unless otherwise indicated, "SE-330" refers to all three monitor series in general.

2. SETUP

For an SE-330 (previous revision) with the RS-232 serial port, no additional driver is required when connected to a PC with an RS-232 serial port. If a USB converter is used for the serial connection, install the converter's USB driver prior to running SE-MON330.

For an SE-330 (new revision) with a USB interface, SE-MON330 should be installed prior to connecting the SE-330 so that the USB driver is properly installed. When the SE-330 is connected, a USB COM Port will appear on the computer. This COM Port is used by SE-MON330. If the USB COM Port does not appear, refer to Section 5.

SE-MON330 opens the Communication tab on start up. To connect, select a connection type and a target. The two connection type options are Serial/USB and Modbus TCP. The Serial/USB connection type (which is also used for an RS-232 connection) provides a COM port choice to connect to either the virtual port generated by the USB driver or the serial port for the RS-232 connection. Modbus-TCP requires the IP address of the SE-330 to connect. Click enable to connect.

NOTE: NGR Current (A) and NGR Voltage (V) may not display correct values without the System Parameters being set.

2.1 SUMMARY TAB

The Summary tab displays several set-point values, metered values, configuration-switch settings, and trip status.

The bottom status line displays the selected COM port, ONLINE or OFFLINE mode, the SE-330 series type, firmware version, trip status, diagnostic status, and the real time clock read from the SE-330.

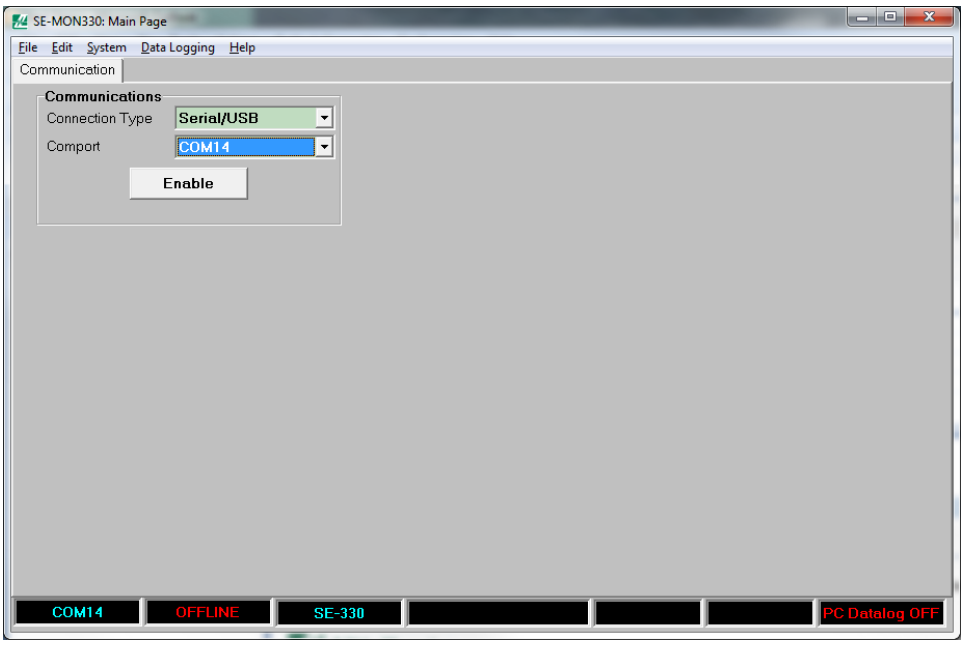

FIGURE 1. Communication Tab.

SE-MON330: Main Page
File Edit System Data Logging Help
Communication Summary Detailed Status and Config Event Records IEC 61850
Set Points
GF Trip Time (s) 0.4
GF Trip Level (% CT Rating) 2
Pulse Period (s) 1.0
Metered Values
NGR Current (% FS) 0
NGR Voltage (% Setting) 0
Resistance Change (ohms) 3
NGR Voltage (V) 0.00
Configuration Switches
K1 Operation Trip
K1 Mode Failsafe
GF-Trip Latch Latching
RF-Trip Latch Latching
Sensing-Resistor (kilohms) 20
Frequency (Hz) 60
Trip Status
Ground Fault No Trip
Resistor Fault No Trip
COM14 ONLINE SE-330 Firmware Version: 2.40 No Trip No Errors 14:40:54
FIGURE 2. Summary Tab.

2.2 Detailed Status and Config Tab

The Detailed Status and Config Tab displays information from the following categories: Metering, Status, System Info, Configuration, Switches, Network, and SNTP Settings. See Figs. 3, 4, and 5.

2.2.1 GF Trip Level (%) and GF Mem Trip Level (%)

The GF Trip Level is set on the front-panel of the SE-330 or SE-330HV as a percentage of the CT-primary rating (2 to 100).

The EF Trip Level is set on the front-panel of the SE-330AU with one of the following ranges:

- 0.125 to 5 A using the EFCT series CT
- 0.75 to 30 A using the SE-CS30 series CT

For the new revision of the SE-330 series the GF Trip Level can also be set to MEM.

When the GF Trip Level front-panel dial is set to MEM, the GF MEM Trip Level (%) can be set from 2 to 100% in 1% increments. The drop down list displays the percentage along with the equivalent trip level current.

The default setting is 15%. See Fig. 4.

2.2.2 Relay K2 and K3 Mode

The Ground-Fault (K2) and Resistor-Fault (K3) indication relays can be configured for fail-safe or non-fail-safe modes (non-fail-safe mode only for the previous revision SE-330 series). The default mode is non-failsafe for K2 and K3. See Fig. 4.

2.2.3 Geo-Magnetic Filter

The geo-magnetic filter can be enabled on SE-330's with firmware version 2.40 or higher. For more information, refer to the SE-330 series (new revision) user manual. See Fig. 4.

2.2.4 Resistor-Fault Trip Time

The resistor-fault trip time can be configured on SE-330's with firmware version 2.40 or higher. For more information, refer to the SE-330 series (new revision) user manual. See Fig. 4.

2.2.5 Resistor-Fault Trip Level

The resistor-fault trip level can be configured on SE-330's with firmware version 2.50 or higher. For more information, refer to the SE-330 series (new revision) user manual. See Fig. 4.

2.2.6 Network

A Network section is shown in the Detailed Status and Config tab when an SE-330 (new revision) with an Ethernet communication option is connected. See Fig. 5. Green edit boxes are fields that can be changed by the user. To change an item, click the green edit box and an IP address box will appear. Enter the IP address, subnet mask, and gateway. To save a value to the SE-330, press "Enter". If the IP address is incomplete or not in the correct format, a warning will be shown and the incomplete address will not be saved to the SE-330. Pressing "Escape" will clear the text in the edit box. Power cycle the SE-330 for the Network Settings to take effect.

2.2.7 SNTP CLIENT

For the IEC 61850 protocol, synchronizing to a time server is necessary. The SE-330 includes an SNTP client for this purpose that can be configured to synchronize with the system NTP server. These settings are located in the SNTP Settings area. The line items in green can be edited by clicking on them and changing the value. See Fig. 5.

Enable the SNTP Client and set the NTP Server IP Address to the address of the system NTP server to synchronize to system time. For troubleshooting connection problems with the NTP Server, monitor the SNTP Client status. The status indicates problems such as NTP Server not found, NTP Server not running, and timeout, or SNTP Synced when operating correctly.

The Poll Period is the time between queries to the NTP server. The default value is 60 s which is typically sufficient to maintain time synchronization to 1 ms accuracy, but it can be configured for periods as low as 1 s.

The Timeout is the maximum time that the SNTP Client will wait for a response from the NTP Server. The default value is 5 s, and the minimum time is 1 s. If a request fails, no change is made to the SE-330 internal clock.

2.3 EVENT RECORDS TAB

The SE-330 series stores up to 100 events (10 events for the previous revision SE-330) with the most recent events on page one as shown in Fig. 6.

Clear Records will clear all event records from the unit.

Save as Text will save all the events from the unit to a text file

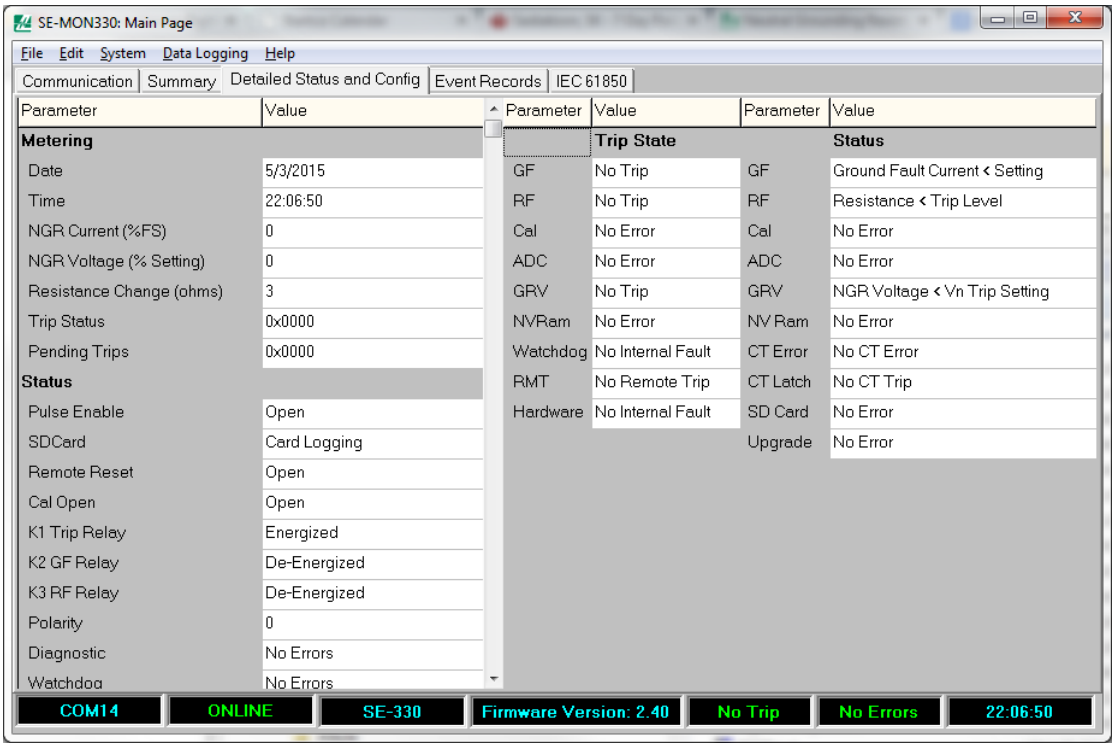

FIGURE 3. Detailed Status and Config Tab – Metering and Status.

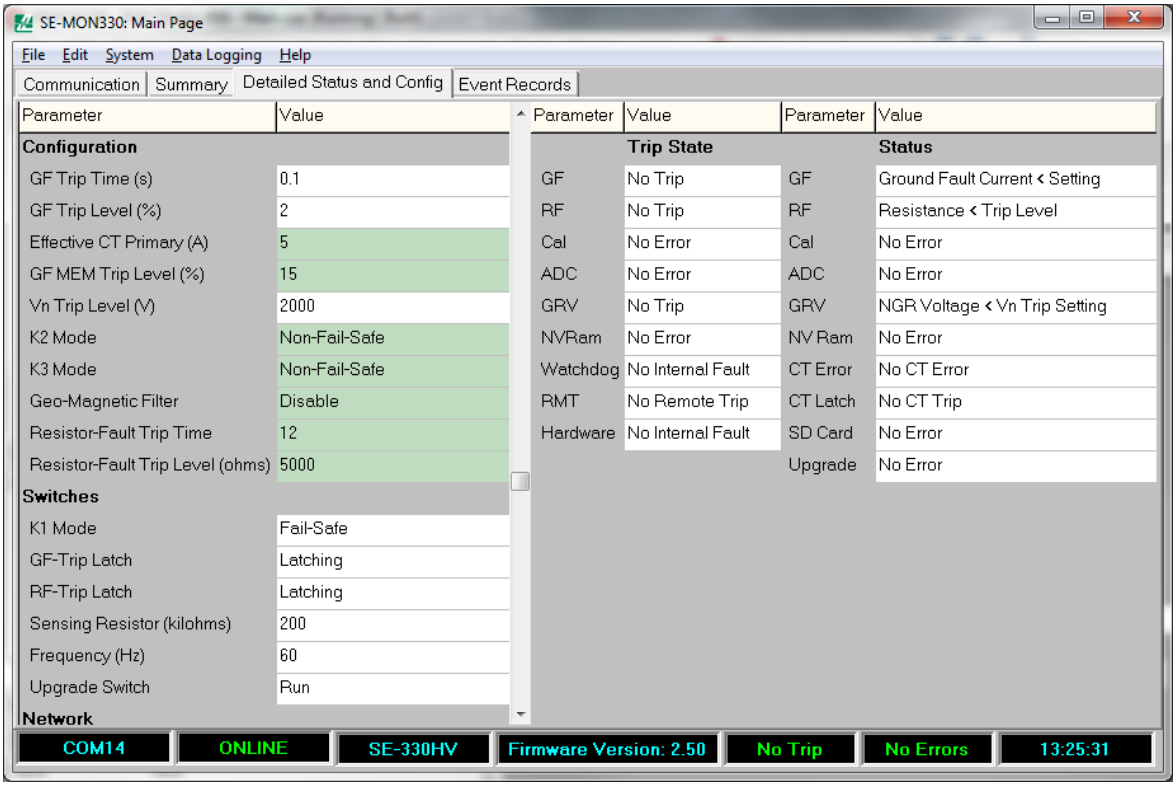

FIGURE 4. Detailed Status and Config Tab – Configuration and Switches.

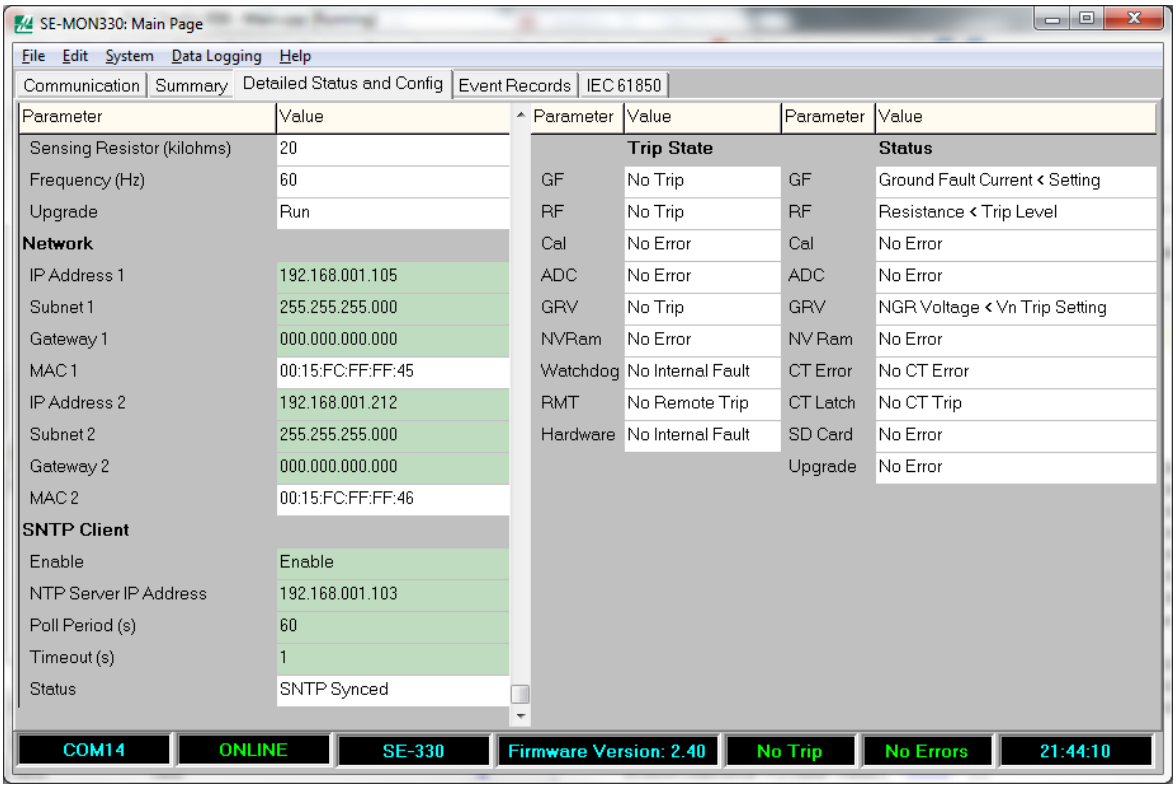

FIGURE 5. Detailed Status and Config Tab – Network and SNTP Settings.

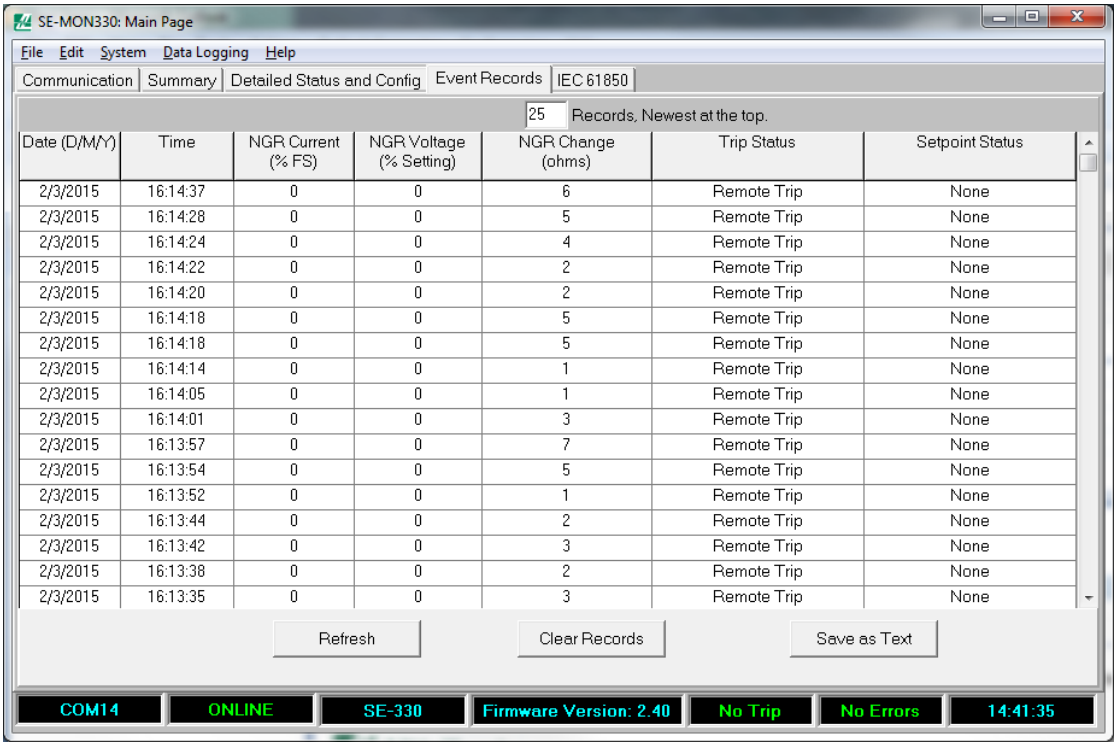
SE-MON330: Main Page
File Edit System Data Logging Help
Communication Summary Detailed Status and Config Event Records IEC 61850
25 Records, Newest at the top.
Date (D/M/Y) Time NGR Current (% FS) NGR Voltage (% Setting) NGR Change (ohms) Trip Status Setpoint Status
2/3/2015 16:14:37 0 0 6 Remote Trip None
2/3/2015 16:14:28 0 0 5 Remote Trip None
2/3/2015 16:14:24 0 0 4 Remote Trip None
2/3/2015 16:14:22 0 0 2 Remote Trip None
2/3/2015 16:14:20 0 0 2 Remote Trip None
2/3/2015 16:14:18 0 0 5 Remote Trip None
2/3/2015 16:14:18 0 0 5 Remote Trip None
2/3/2015 16:14:14 0 0 1 Remote Trip None
2/3/2015 16:14:05 0 0 1 Remote Trip None
2/3/2015 16:14:01 0 0 3 Remote Trip None
2/3/2015 16:13:57 0 0 7 Remote Trip None
2/3/2015 16:13:54 0 0 5 Remote Trip None
2/3/2015 16:13:52 0 0 1 Remote Trip None
2/3/2015 16:13:44 0 0 2 Remote Trip None
2/3/2015 16:13:42 0 0 3 Remote Trip None
2/3/2015 16:13:38 0 0 2 Remote Trip None
2/3/2015 16:13:35 0 0 3 Remote Trip None
Refresh
Clear Records
Save as Text
COM14 ONLINE SE-330 Firmware Version: 2.40 No Trip No Errors 14:41:35

FIGURE 6. Event Records Tab.

2.4 SYSTEM MENU

2.4.1 EARTH-FAULT CT

From the System drop-down menu, select Earth-Fault CT to choose the CT connection being used with the SE-330.

2.4.2 VOLTAGE SETTING

The V_N trip level can be entered for an SE-330 (previous version) with the RS-232 serial port. From the System drop-down menu, select Voltage Setting to specify the V_N Trip Level being used on the SE-330. Note that on the SE-330 with USB, the voltage setting is updated automatically when the SE-330 is connected.

2.4.3 SET DATE/TIME

To set the date and time (new revision SE-330 series only), connect to the SE-330 using the USB connection. Select Set Date/Time from the System menu. The unit will be set to the same date and time as the computer.

2.4.4 RESET TO DEFAULTS

The SE-330 can be configured to its default settings by choosing Reset to Defaults from the System Menu.

2.4.5 REMOTE CALIBRATION

To initiate a remote calibration (new revision SE-330 series only), select Remote Calibration from the System menu. Select the Detailed Status and Config tab and confirm that the calibration trip state displays “No Error”. In most cases, the Calibration Value will change from the previous value.

FIGURE 7. System Parameters Menu.

2.5 USING SET-POINT ASSISTANT

Selecting the Set-Point Assistant from the Help menu opens the Set-Point Assistant in a web browser. Using the System Parameters, the Set-Point Assistant recommends a sensing resistor type, ground-fault trip level, a V_N trip level, and the RES switch setting.

Users can select between four monitors: SE-325, SE-330, SE-330AU, and SE-330HV.

Enter the system's line-to-line voltage or line-to-neutral voltage. Once it has been entered, the other system voltage field will populate automatically.

Enter either the let-through current of the neutral-grounding resistor or the resistance of the neutral-grounding resistor. Once one field has been entered, the other field will populate automatically.

Select indoor or outdoor location.

If an SE-330, SE-330AU, or SE-330HV is selected, the primary rating of the connected CT must be defined in order to recommend a ground-fault-trip setting. Select this parameter using the CT Selection drop-down menu.

Several recommendations are provided: the sensing resistor hardware, the ground-fault trip level, the minimum Vn Trip Level, and the S5 configuration. Users can select a different sensing resistor or ground-fault trip level and the other recommendation fields will update accordingly.

Please contact the factory if necessary for further information.

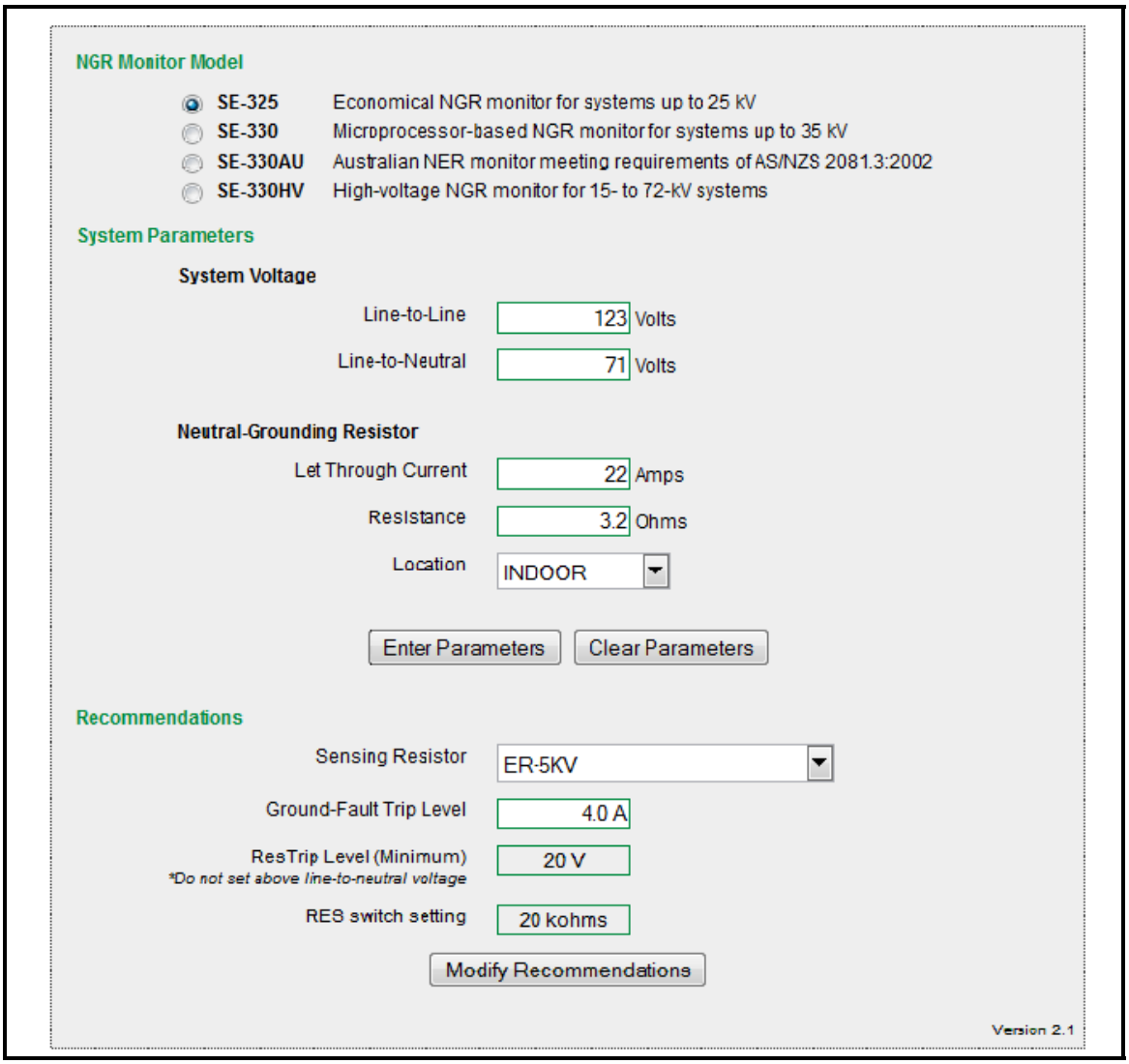
NGR Monitor Model
SE-325 Economical NGR monitor for systems up to 25 kV
SE-330 Microprocessor-based NGR monitor for systems up to 35 kV
SE-330AU Australian NER monitor meeting requirements of AS/NZS 2081.3:2002
SE-330HV High-voltage NGR monitor for 15- to 72-kV systems
System Parameters
System Voltage
Line-to-Line 123 Volts
Line-to-Neutral 71 Volts
Neutral-Grounding Resistor
Let Through Current 22 Amps
Resistance 3.2 Ohms
Location INDOOR
Enter Parameters
Clear Parameters
Recommendations
Sensing Resistor ER-5KV
Ground-Fault Trip Level 4.0 A
ResTrip Level (Minimum) 20 V
*Do not set above line-to-neutral voltage
RES switch setting 20 kohms
Modify Recommendations
Version 2.1

FIGURE 8. Set-Point Assistant.

3. DATA LOGGING DIRECTLY TO A PC

When connected to an SE-330, SE-MON330 allows datalogging directly to a file on the connected PC. For the SE-330 (new revision) with USB and SD capability, this data-logging feature is in addition to the SD-Card datalogging feature.

To configure datalogging, select Data Logging | Settings. Options are available to enable datalogging, and select the data-log file location.

For the SE-330 (previous revision) with RS-232 port, the file name provided will have the month and day added to it (ie: SE330_0326.txt). For the SE-330 with the USB interface, the file name is automatically generated from the SE-330 model, serial number, and date (ie: SE330_123456789_0326.txt).

When enabled, all data will be logged to the selected file every 1.5 to 2 s for the duration of the day. The SE-MON330 data file closes at the end of the day (midnight) and a new file is started with the new date.

There is some variation in the datalogging file details between the RS-232 and USB interface versions. These changes are described in the following sections.

3.1 DATA LOGGING DETAILS (FOR SE-330 WITH RS-232 INTERFACE)

Individual data items listed in the datalogging file are saved on a per-line basis in the following order:

GF Trip-Time Setting (see Table 1)

GF Trip-Level Setting (see Table 2)

Pulse Time Setting (see Table 3)

NGR calibration (number is unitless)

NGR current in percent of CT rating (0 to 100)

NGR voltage in percent of Vn trip level setting (0 to 100)

NGR Change (ohms)

Relay Status (see Table 4)

Configuration Switch Status (see Table 5)

Record Head

Net Mode : Not used

Net GF Time : Not used

Net GF Trip Setting : Not used

Net Pulse Time : Not used

Net Switches : Not used

Trip Status (see Table 6)

Set-Point Status (see Table 7)

Port A (see Table 8)

Port G (see Table 9)

Port H (see Table 10)

TABLE 1. GF TRIP-TIME SETTING
(FRONT-PANEL SELECTION 0 to 10)

POSITION	SE-330/SE-330HV	SE-330AU
0	100 ms	100 ms
1	200 ms	120 ms
2	300 ms	140 ms
3	400 ms	160 ms
4	500 ms	180 ms
5	700 ms	200 ms
6	1 s	250 ms
7	2 s	300 ms
8	3 s	350 ms
9	5 s	400 ms
10	10 s	500 ms

TABLE 2. GF TRIP-LEVEL SETTING
(FRONT-PANEL SELECTION 0 to 10)

POSITION	SE-330/ SE-330HV	SE-330AU EFCT-x	SE-330AU CS30-x
0	2% CT Rating	125 mA	0.75 A
1	4% CT Rating	250 mA	1.5 A
2	6% CT Rating	300 mA	1.8 A
3	8% CT Rating	400 mA	2.4 A
4	10% CT Rating	500 mA	3.0 A
5	15% CT Rating	750 mA	4.5 A
6	20% CT Rating	1 A	6.0 A
7	40% CT Rating	2 A	12.0 A
8	60% CT Rating	3 A	18.0 A
9	80% CT Rating	4 A	24.0 A
10	100% CT Rating	5 A	30.0 A

TABLE 3. PULSE TIME SETTING
(FRONT-PANEL SELECTION 0 to 10, SE-330 Only)

POSITION	TIME
0	1.0 s
1	1.2 s
2	1.4 s
3	1.6 s
4	1.8 s
5	2.0 s
6	2.2 s
7	2.4 s
8	2.6 s
9	2.8 s
10	3.0 s

TABLE 4. RELAY STATUS (INTEGER)

BIT	DEFINITION
Bit 0, Spare	
Bit 1, K3:	1 = RF Indication Relay Energized 0 = Not Energized
Bit 2, K2:	1 = EF/GF Indication Relay Energized 0 = Not Energized
Bit 3, K1:	1 = Trip/Pulse Relay Energized 0 = Not Energized
Bit 4, Spare	
Bit 5, Spare	
Bit 6, Spare	
Bit 7, Spare	

TABLE 5. CONFIGURATION SWITCH STATUS
(INTEGER)

BIT	DEFINITION
Bit 0, S4:	1 = RF Latch 0 = RF Not Latched
Bit 1, S3:	1 = EF/GF Latched 0 = EF/GF Not Latched
Bit 2, S5:	1 = 20 k Sensor (200 k for SE-330HV) 0 = 100 k Sensor
Bit 3, S6:	1 = 50 Hz 0 = 60 Hz
Bit 4, S2:	1 = Fail Safe Trip-Relay Operation 0 = Non Fail Safe Operation
Bit 5, S1:	1 = Trip Configuration (K1) 0 = Pulsing Configuration (K1)

*S1 not applicable to SE-330HV and SE-330AU
*S2 not applicable to SE-330AU

TABLE 6. TRIP STATUS (HEX)

BIT	DEFINITION
Bit 0, EF/GF:	1 = Earth/Ground Fault Trip 0 = No Trip
Bit 1, RF:	1 = Resistor Fault Trip 0 = No Trip
Bit 2, CAL:	1 = Calibration Error 0 = No Error
Bit 3, ADC:	1 = A/D Error 0 = No Error
Bit 4, GRV:	1 = Voltage Trip 0 = No Trip
Bit 5, EE:	1 = EEPROM Error 0 = No Error
Bit 6, SYS:	1 = Internal Fault 0 = No Internal Fault
Bit 7, RMT:	1 = Remote Trip 0 = No Trip

TABLE 7. SET-POINT STATUS (HEX)

BIT	DEFINITION
Bit 0, EF/GF:	1 = Earth/Ground Fault Current >= Setting 0 = Earth/Ground Fault Current < Setting
Bit 1, RF:	1 = Resistance >= Trip Level 0 = Resistance < Trip Level
Bit 2, Not Used	
Bit 3, Not Used	
Bit 4, GRV:	1 = NGR Voltage >= Vn Trip Setting 0 = NGR Voltage < Vn Trip Setting
Bit 5, Not Used	
Bit 6, CT Error:	1 = CT Error (SE-330AU Only) 0 = No CT Error
Bit 7, CT Latch:	1 = CT Trip (SE-330AU Only) 0 = No CT Trip

TABLE 8. PORT A (HEX)

BIT	DEFINITION
Bit 0, S4:	1 = RF Latch 0 = RF Not Latched
Bit 1, S3:	1 = EF/GF Latched 0 = EF/GF Not Latched
Bit 2, S5:	1 = 20 k Sensor (200 k for SE-330HV) 0 = 100 k Sensor
Bit 3, S6:	1 = 50 Hz 0 = 60 Hz
Bit 4, S2:	1 = Fail Safe Trip-Relay Operation 0 = Non Fail Safe Operation
Bit 5, S1:	1 = Trip Configuration (K1) 0 = Pulsing Configuration (K1)
Bit 6, S7:	Spare
Bit 7, OC1:	Test Point

S1 not applicable to SE-330HV and SE-330AU
S2 not applicable to SE-330AU

TABLE 9. PORT G (HEX)

BIT	DEFINITION
Bit 0, POL:	Drive Polarity Output
Bit 1, DIAG:	Diagnostic Output
Bit 2, CAL LED:	Calibration LED Output
Bit 3, FLAG RST:	Trip Flag Reset Output
Bit 4, RST:	Trip Reset Input
Bit 5, CAL:	Calibration Switch Input
Bit 6, PEN:	Pulse Enable Input
Bit 7, R/W:	CPU R/W

TABLE 10. PORT H (HEX)

BIT	DEFINITION
Bit 0, PWM:	Analog Output
Bit 1, RF TRIP:	K3/Flag/LED Output
Bit 2, GF TRIP:	K2/Flag/LED Output
Bit 3, K1:	K1 Output
Bit 4, Spare:	
Bit 5, UH:	Unit Healthy Output
Bit 6, ABCS:	Anybus CS
Bit 7, CSPROG:	Flash CS

3.2 DATA LOGGING DETAILS (FOR SE-330 WITH USB INTERFACE)

Individual data items listed in the datalogging file are saved in tab delimited format on a per-line basis in the following order:

Time
Format is HH:MM:SS

GF Trip Time (s)
The time in seconds corresponds to the front-panel setting.

GF Trip Level (%)
The percent of CT rating corresponds to the front-panel setting. MEM is indicated if the MEM setting is selected. For the SE-330AU, the trip level in mA for the EFCT is displayed.

GF MEM Trip Level (%)
Level is in % of CT-Primary Rating

Pulse Period (s)
Not included in AU and HV versions

V_N Trip Level (V)
Front-panel setting

Calibration Value
This unitless value is determined at the time of calibration and does not change unless SE-330 is re-calibrated.

K1 Operation
Pulsing or Trip

K1 Mode
Fail-Safe or Non-Fail-Safe

GF-Trip Latch
Latching or Non-Latching

RF-Trip Latch
Latching or Non-Latching

Sensing Resistor
20 kilohms, 100 kilohms, 200 kilohms (SE-330HV only)

Frequency
50 Hz or 60 Hz

Upgrade
State of S8 configuration switch, Run or Upgrade

K2 Mode
Fail-Safe or Non-Fail-Safe

K3 Mode
Fail-Safe or Non-Fail-Safe

Serial Number
Serial number of SE-330

Pulse Enable
State of the Pulse-Enable input, Open or Closed. It does not apply to SE-330HV and SE-330AU.

SDCARD
Indicates state of SD Card as Inserted or Not Inserted

Remote Reset
State of remote-reset input, Open or Closed

CAL_OPEN
State of calibration switch, Open or Closed

K1 Trip Relay
K1 relay state, Energized or De-energized

K2 GF Relay
K2 relay state, Energized or De-energized

K3 RF Relay
K3 relay state, Energized or De-energized

Polarity
State of ER drive output, positive or negative

DIAGNOSTIC
The following diagnostic trips are supported: Calibration-Error Trip, Remote Trip, CT Error, A/D-Converter-Error Trip, SD Card Error, Watchdog Trip, CPU Trip, Non-Volatile Memory Error Trip, SD Upgrade Error.

WATCHDOG
The following sources may be displayed: MAIN_TASK, ADC_TASK, DFT_TASK, GF_TASK, PULSE_TASK, NGR_TASK, MONITOR_TASK, STATE_TASK, SDCARD_TASK, USB_CDC_TASK, USBD_EP0_TASK_INDEX, USBD_CONTROL_TASK_INDEX, USBD_TRANSFER_TASK_INDEX, USBD_CDC_ACM_TASK_INDEX, WATCHDOG_TASK, SOCKET_TASK, TCP_TASK, RTA_EIP_TASK, TCPRUN_TASK, TCPCON_TASK, IEC61850_TASK.

FLASHHEALTHY
Not Healthy or Healthy

BOOTSECTION
Boot identifier: None, Factory Default 0, Factory Default 1, Upgrade Image 0, Upgrade Image 1

DATE
Real-time-clock (RTC) date in DD/MM/YYYY format.

TIME
Real-time-clock (RTC) time in HH:MM:ss.ss format.

NGR Current (%FS)
NGR current in percent of CT rating.

NGR Voltage (% Setting)
NGR voltage as a percent of the V_N setting. Range is 0 to 100%

Resistance Change (ohms)
Resistance change in ohms relative to the initial calibration value of zero

Trip Status (see Table 11)

Set-Point Status (see Table 12)

NGR Current (A)
Current value in (A) calculated by using the **NGR Current (%FS)** parameter and CT-Primary rating setting.

NGR Voltage (V)
NGR voltage in (V) calculated by using the **NGR Voltage (% Setting)** parameter and voltage setting that corresponds to 100% full scale.

TABLE 11. TRIP STATUS

BIT	DEFINITION
Bit 0, EF/GF:	1 = Earth/Ground Fault Trip 0 = No Trip
Bit 1, RF:	1 = Resistor Fault Trip 0 = No Trip
Bit 2, CAL:	1 = Calibration Error 0 = No Error
Bit 3, ADC:	1 = A/D Error 0 = No Error
Bit 4, GRV:	1 = Voltage Trip 0 = No Trip
Bit 5, EE:	1 = EEPROM Error 0 = No Error
Bit 6, SYS:	1 = Internal Fault 0 = No Internal Fault
Bit 7, RMT:	1 = Remote Trip 0 = No Trip
Bit 8, HW:	1 = Hardware Trip 0 = No Trip

TABLE 12. SET-POINT STATUS

BIT	DEFINITION
Bit 0, EF/GF:	1 = Earth/Ground Fault Current >= Setting 0 = Earth/Ground Fault Current < Setting
Bit 1, RF:	1 = Resistance >= Trip Level 0 = Resistance < Trip Level
Bit 2, CAL:	1 = Calibration Error 0 = No Error
Bit 3, ADC:	1 = A/D Error 0 = No Error
Bit 4, GRV:	1 = NGR Voltage >= Vn Trip Setting 0 = NGR Voltage < Vn Trip Setting
Bit 5, EE:	1 = EEPROM Error 0 = No Error
Bit 6, CT Error:	1 = CT Error (SE-330AU Only) 0 = No CT Error
Bit 7, CT Latch:	1 = CT Trip (SE-330AU Only) 0 = No CT Trip

4. USING SE-MON330 TO UPDATE IEC 61850 SETTINGS

This section provides an overview of the IEC 61850 configuration screens. For a more detailed description of IEC 61850 interface and settings, please refer to the IEC 61850 manual which can be downloaded from www.littelfuse.com/se-330.

The IEC 61850 tab in SE-MON330 will be displayed when SE-MON330 is connected to an SE-330 with an optional IEC 61850 interface. See Fig. 9.

Initially all the fields will be blank. Choose one of the two following options:

- Select “Load from SE-330” which will read the settings directly from the unit.
- Select “Load from ICD File” and select the default ICD file (included with SE-MON330) or a previously saved ICD file.

The default ICD file can be found in the resources directory of the SEMON-330 installation. Typically this is: C:\Program Files (x86)\Startco\ SE-MON330\resources\SE330.icd.

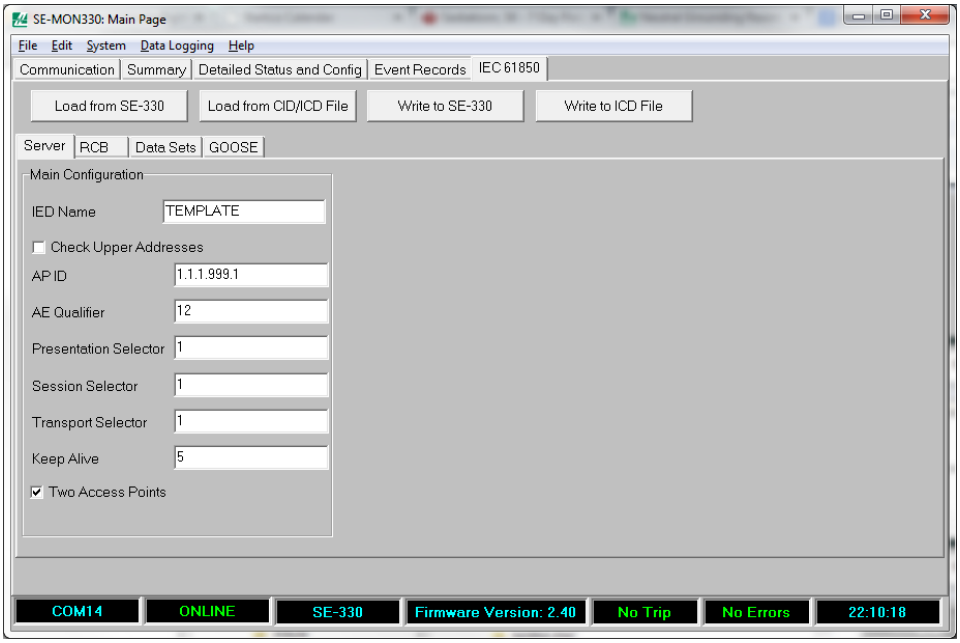

FIGURE 9. IEC 61850 Page, Server Tab.

The Report Control Blocks are edited through the RCB tab by selecting the RCB from the drop down list and changing the values. See Fig. 10.

Data sets can be added (using the + button) or edited (using the pencil button). The default data sets (Measurement, Record, and GOOSE) cannot be edited. See Fig. 11.

When a data set is added or edited, the data set properties window will be shown. See Fig. 12. The data model is displayed on the left, and the data set fields are displayed on the right. The Logical Device, Logical Node and data set name are listed at the top and can be edited. To add a field to the data set, select it from the structure on the left and click the right arrow button between the structure and the included fields. To remove a field in the list, select it and click the X button. To change the position of a field, select it and click the up or down arrow button. Click OK to keep the changes, or Cancel to discard them.

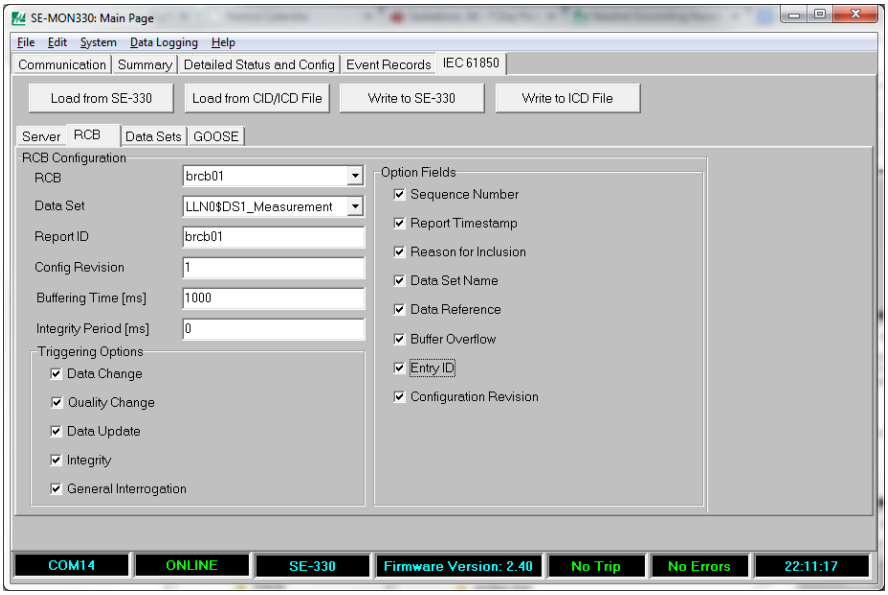

FIGURE 10. IEC 61850 Page, RCB Tab.

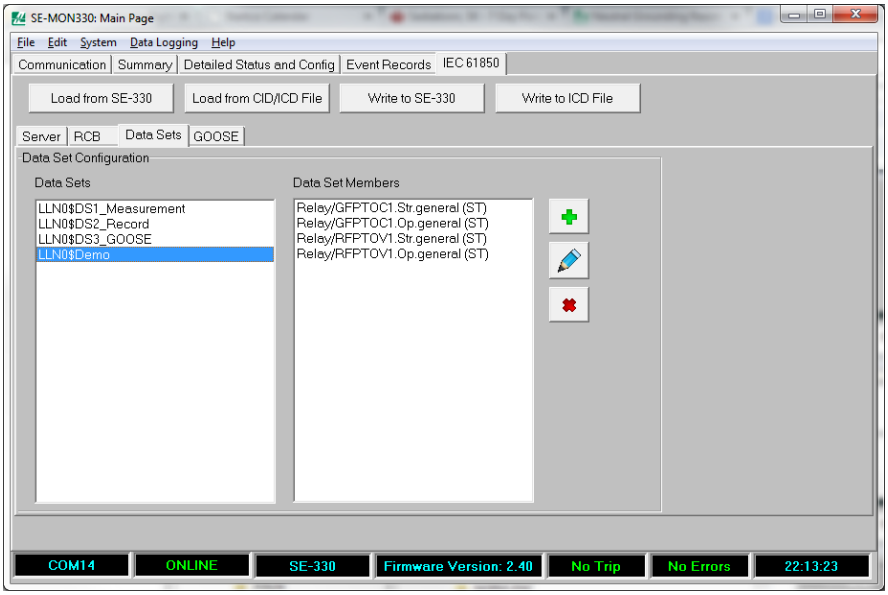

FIGURE 11. IEC 61850 Page, Data Sets Tab.

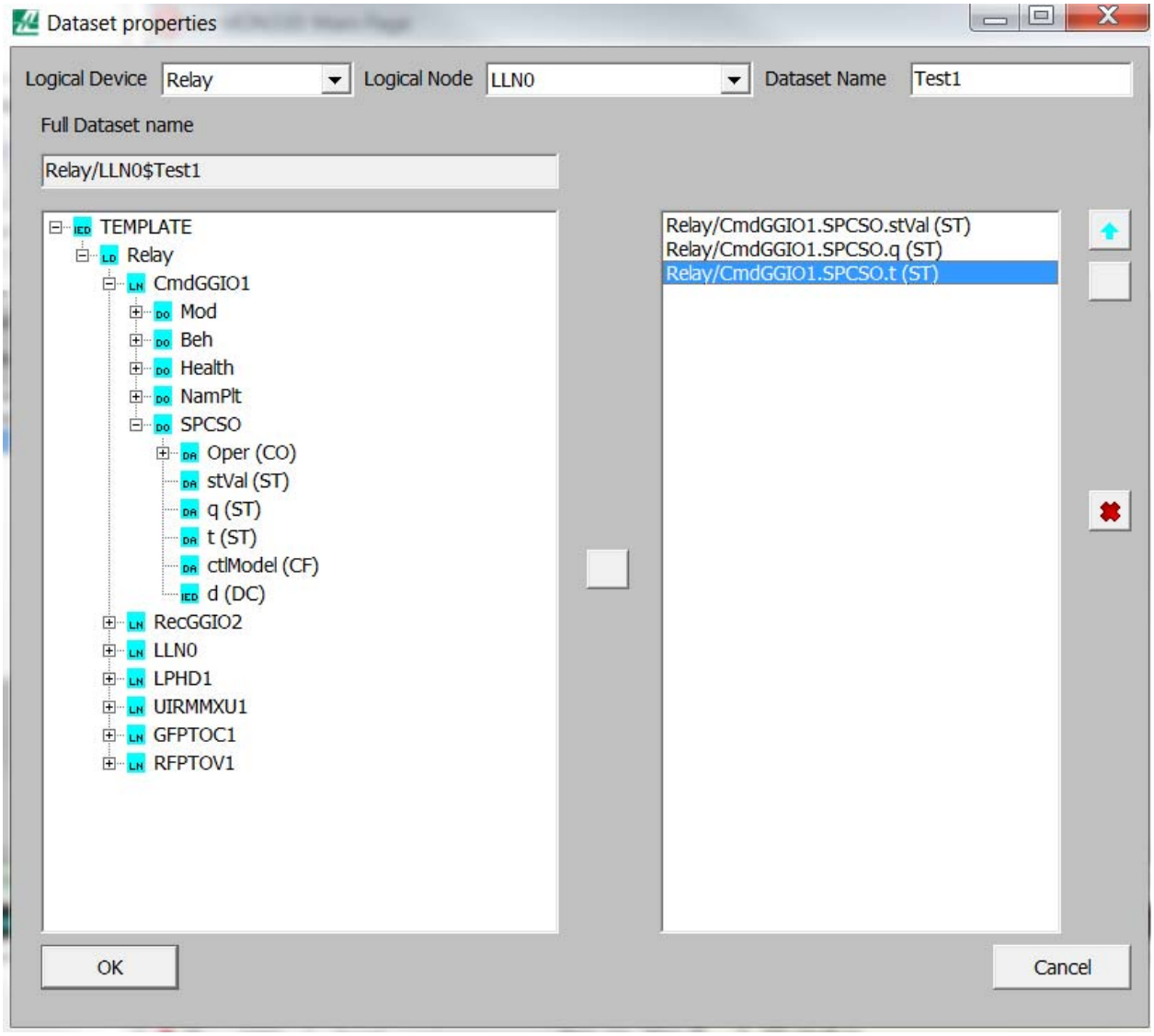

FIGURE 12. IEC 61850 Page, Dataset Properties.

GOOSE Control Blocks (GCB) and Network Inputs (NI) are edited in a similar way to report control blocks. Selecting the GCB or NI from the dropdown list will bring up the settings for that GCB or NI which can then be edited.

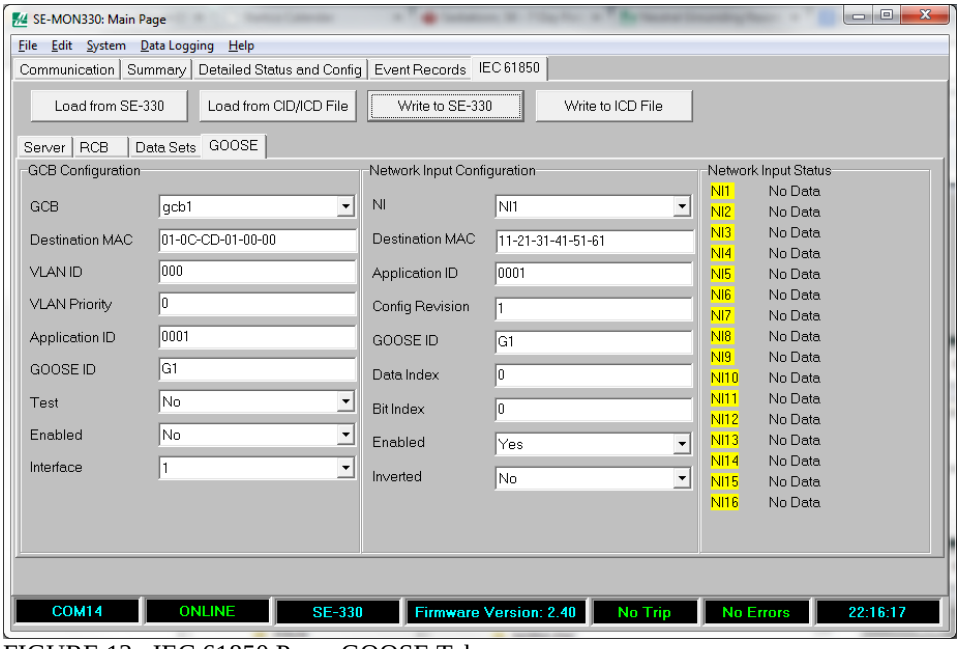

FIGURE 13. IEC 61850 Page, GOOSE Tab.

5. TROUBLESHOOTING

Ensure that the newest version of SE-MON330 is installed prior to connecting to an SE-330. SE-MON330 can be found at www.littelfuse.com/SE-330.

5.1 USB COM PORT

USB com port stopped working during operation, or shows as "in use":

Unplug and reconnect the USB cable.

USB com port fails to appear when plugging in a powered SE-330:

The driver might not be installed correctly. See Section 5.2 or 5.3 for more information.

NOTE: Administrative access will be required to correctly install the driver.

5.2 USB Driver Installation Instructions for Windows 7

It is recommended to install SE-MON330 before connecting to an SE-330 with a USB connection. However, if you have connected to an SE-330 first, please follow this guide.

SE-MON330 can be found at www.littelfuse.com/SE-330. Install SE-MON330 before continuing with this guide.

1. These screens appear when the USB cable is plugged in to a powered SE-330:

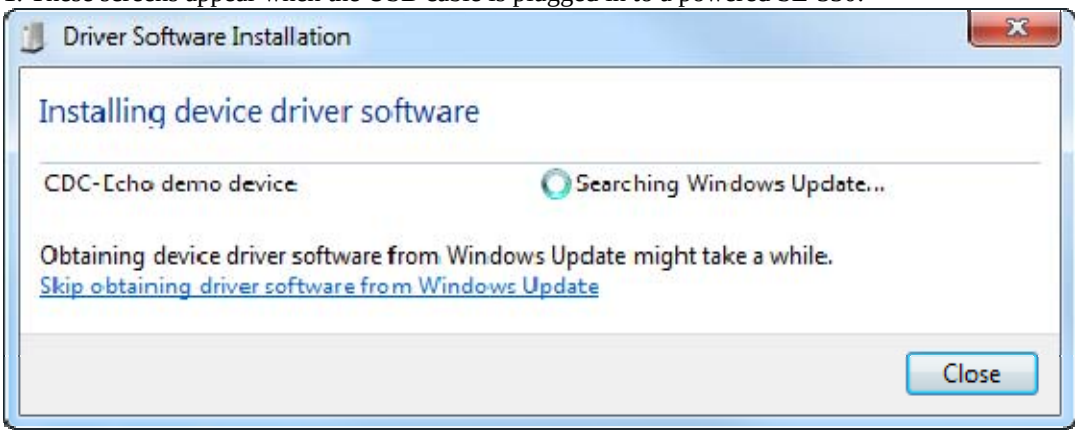
Driver Software Installation
Installing device driver software
CDC-Echo demo device
Searching Windows Update...
Obtaining device driver software from Windows Update might take a while.
Skip obtaining driver software from Windows Update
Close

FIGURE 14. Windows 7 Driver Software Installation.

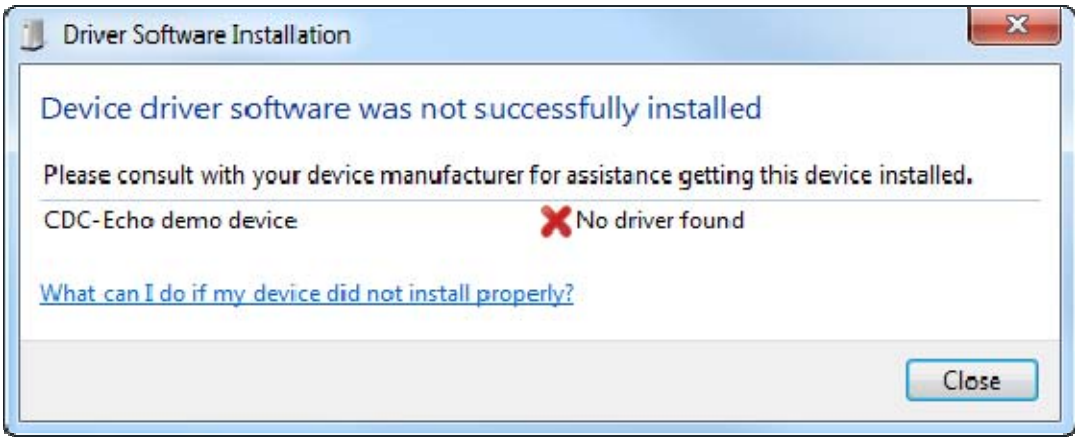
Driver Software Installation
Device driver software was not successfully installed
Please consult with your device manufacturer for assistance getting this device installed.
CDC-Echo demo device
No driver found
What can I do if my device did not install properly?
Close

FIGURE 15. Windows 7 Driver Software Installation Failure.

2. To open the Computer Management screen, click Start, right-click on Computer, and click Manage.

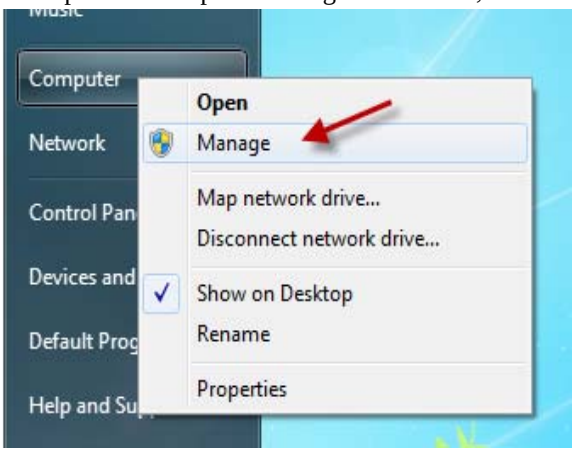

FIGURE 16. Windows 7 Manage Selection.

3. Click on Device Manager.

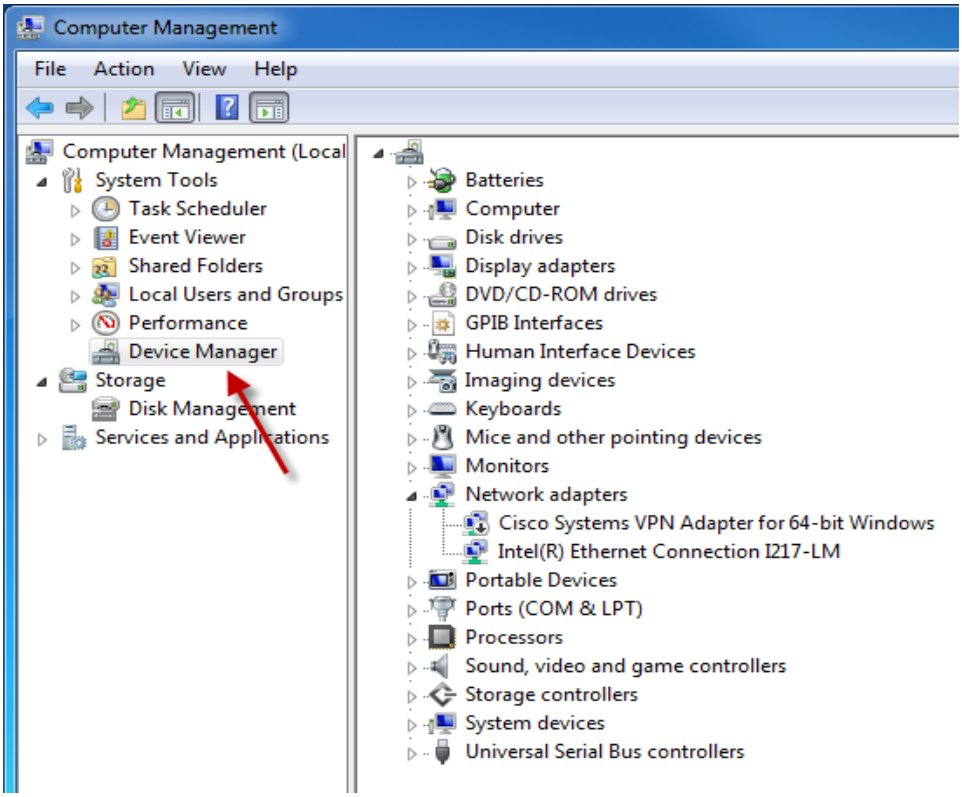

FIGURE 17. Windows 7 Device Manager.

4. You should see the “CDC-Echo demo device” with a warning icon.

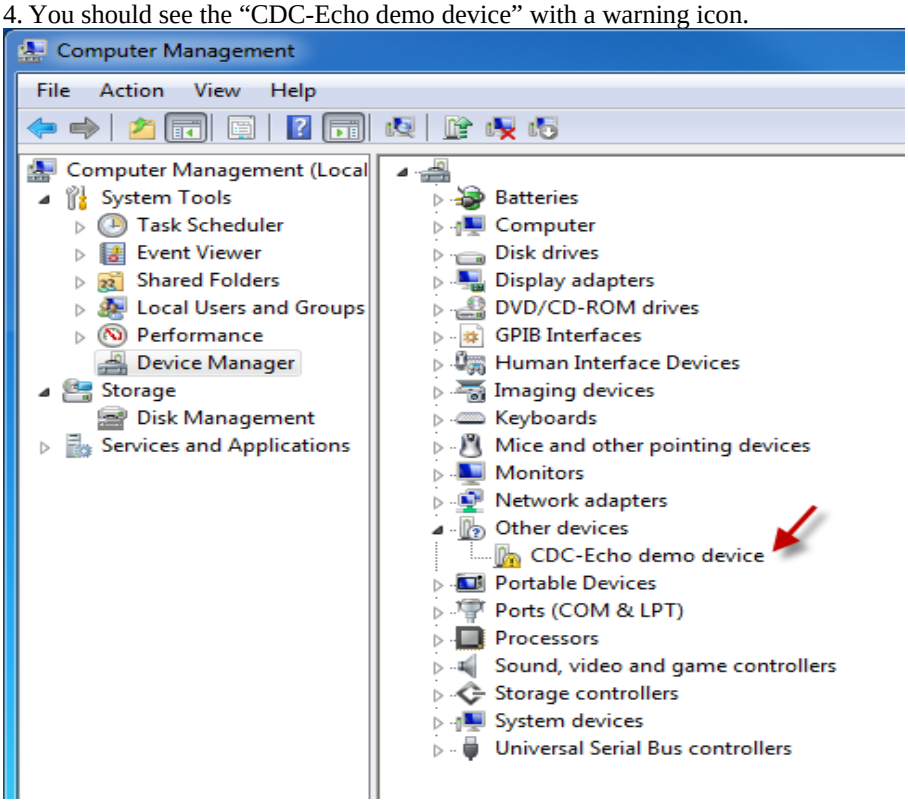

FIGURE 18. Windows 7 CDC-Echo Demo Device.

5. Right-click on the device and select Update Driver Software.

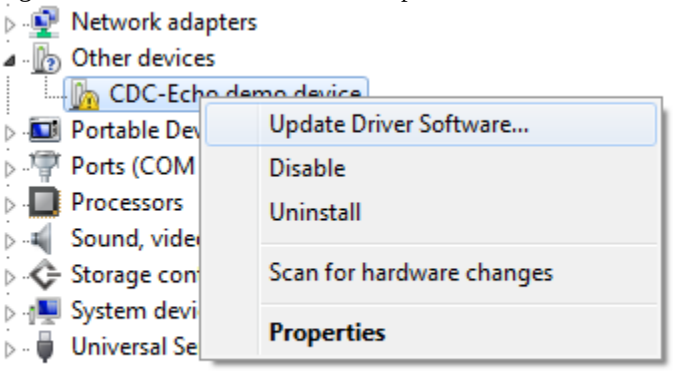

FIGURE 19. Windows 7 Update Driver Software.

6. Select Browse my computer for driver software.

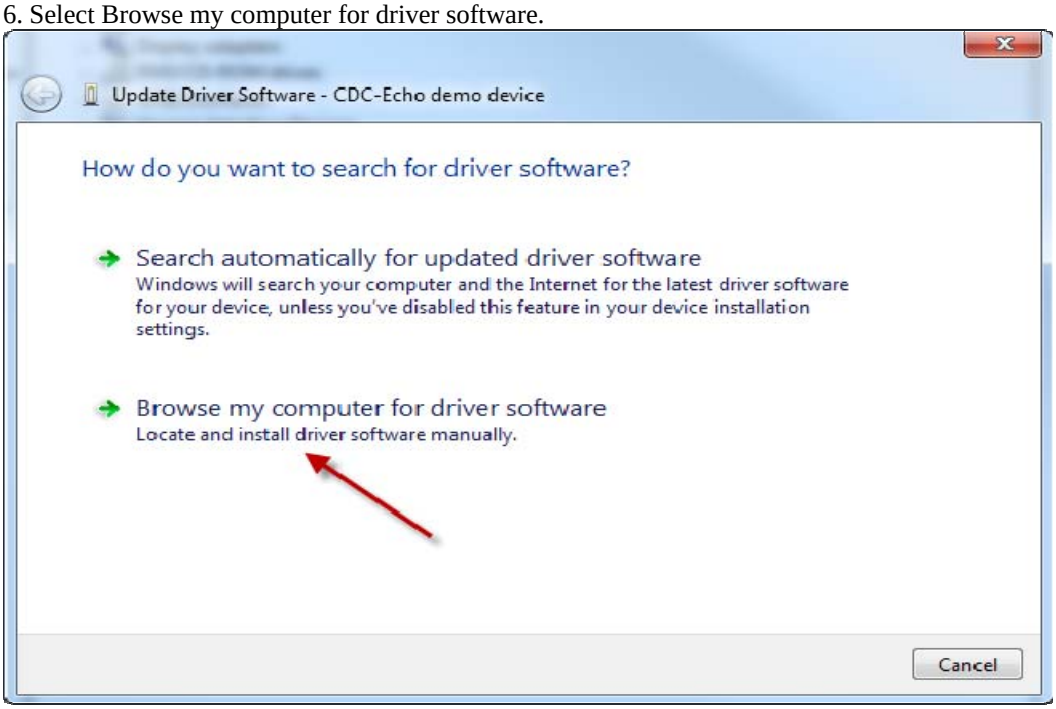
Update Driver Software - CDC-Echo demo device
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
Browse my computer for driver software
Locate and install driver software manually.
Cancel

FIGURE 20. Windows 7 Browse My Computer for Driver Software.

7. Ensure that SE-MON330 is installed before continuing. Navigate to the installation location of SE-MON330. The default installation location is shown below.

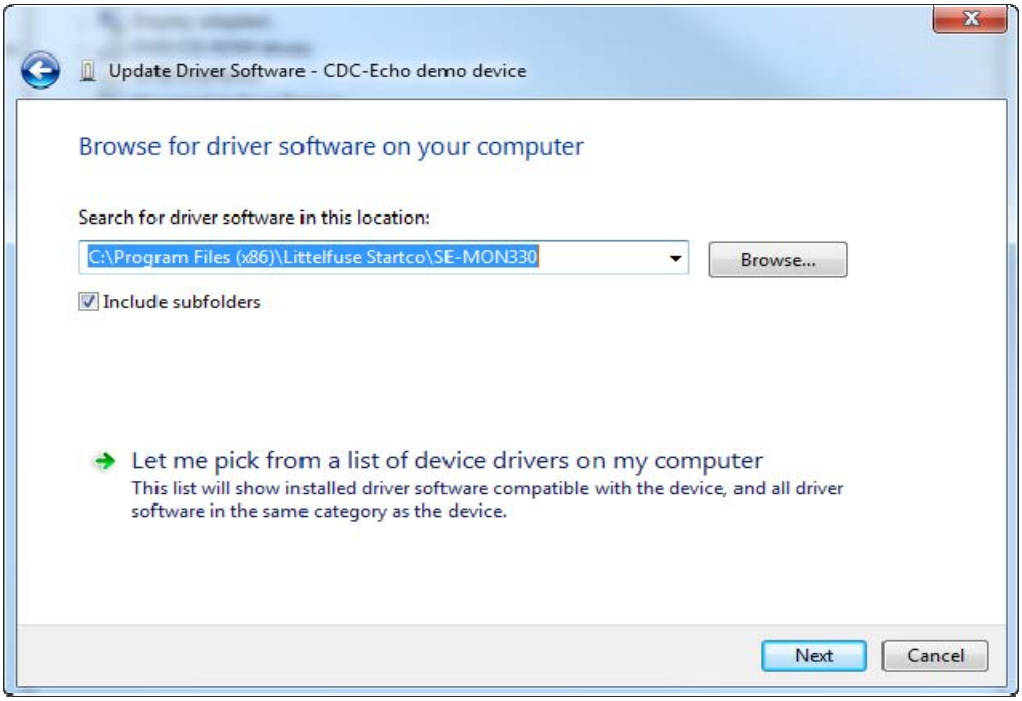
Update Driver Software - CDC-Echo demo device
Browse for driver software on your computer
Search for driver software in this location:
C:\Program Files (x86)\Littelfuse Startco\SE-MON330
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next
Cancel

FIGURE 21. Windows 7 Select Driver Location.

NOTE: The USB driver filename is called usb_cdc_ser.inf, but Windows should find it in the installation location automatically.

8. You will see the following warning. Select “Install this driver software anyway”.

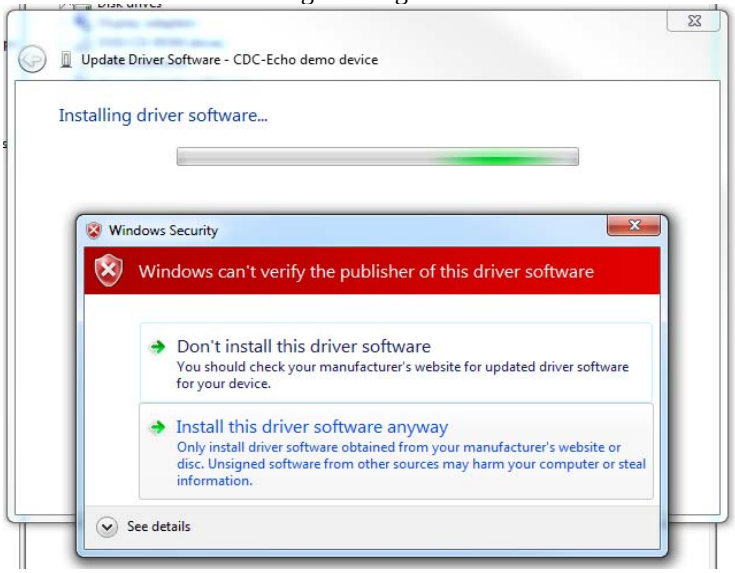
Update Driver Software - CDC-Echo demo device
Installing driver software...
Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

FIGURE 22. Windows 7 Security Warning.

9. If Windows has successfully found the driver software, the following screen will be shown.

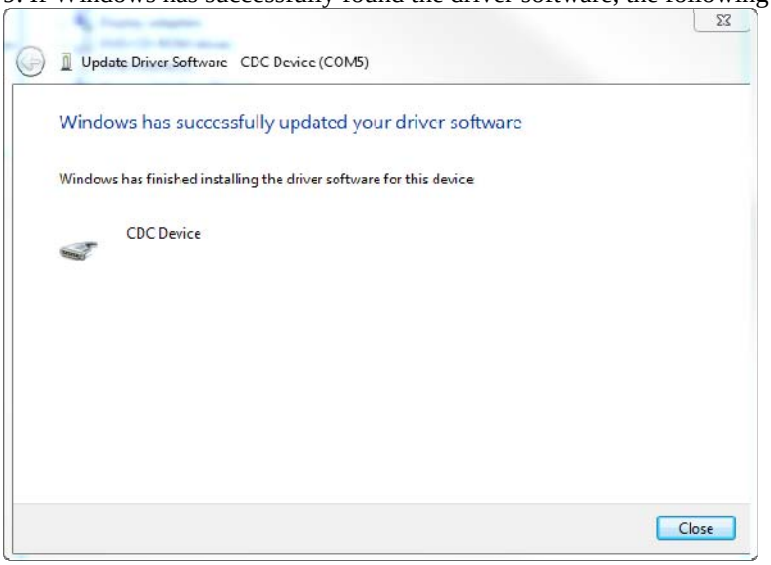
Update Driver Software - CDC Device (COM5)
Windows has successfully updated your driver software
Windows has finished installing the driver software for this device
CDC Device
Close

FIGURE 23. Windows 7 Driver Software Installed.

10. In the Ports area in Device Manager, ensure you see the following (COM number will vary, but remember this number):

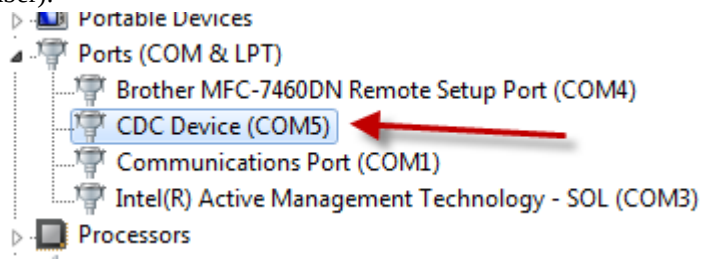

FIGURE 24. Windows 7 Device Manager - Ports.

11. Run SE-MON330 and select the relevant COM port. SE-MON330 should now connect successfully.

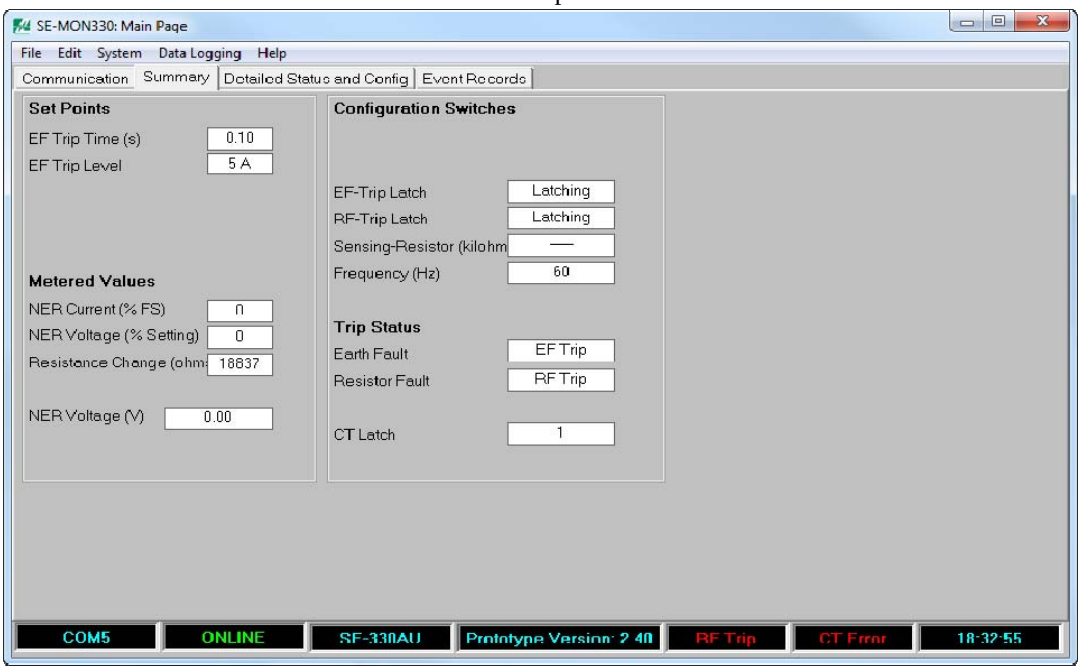
SE-MON330: Main Page
File Edit System Data Logging Help
Communication Summary Detailed Status and Config Event Records
Set Points
EF Trip Time (s) 0.10
EF Trip Level 5 A
Metered Values
NER Current (% FS) 0
NER Voltage (% Setting) 0
Resistance Change (ohm) 18837
NER Voltage (V) 0.00
Configuration Switches
EF-Trip Latch Latching
RF-Trip Latch Latching
Sensing-Resistor (kilohm —
Frequency (Hz) 60
Trip Status
Earth Fault EF Trip
Resistor Fault RF Trip
CT Latch 1
COM5 ONLINE SE-330AU Prototype Version: 2.40 RF Trip CT Error 18:32:55

FIGURE 25. SE-MON330 Summary Tab.

5.3 USB Driver Installation Instructions for Windows 8

The SE-330 will not connect to a Windows 8 PC automatically because it does not install drivers that have not been digitally signed by Microsoft.

After installing SE-MON330, follow these steps to install the USB driver.

NOTE: Administrative access will be required to correctly install the driver.

1. Hover the cursor over the bottom right corner of the desktop until the sidebar appears.

FIGURE 26. Windows 8 Desktop.

2. Click Settings, then Change PC Settings

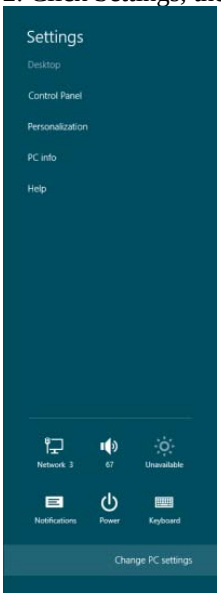

FIGURE 27. Windows 8 Change PC Settings Button.

3. Click the General Tab and scroll down to Advanced startup.

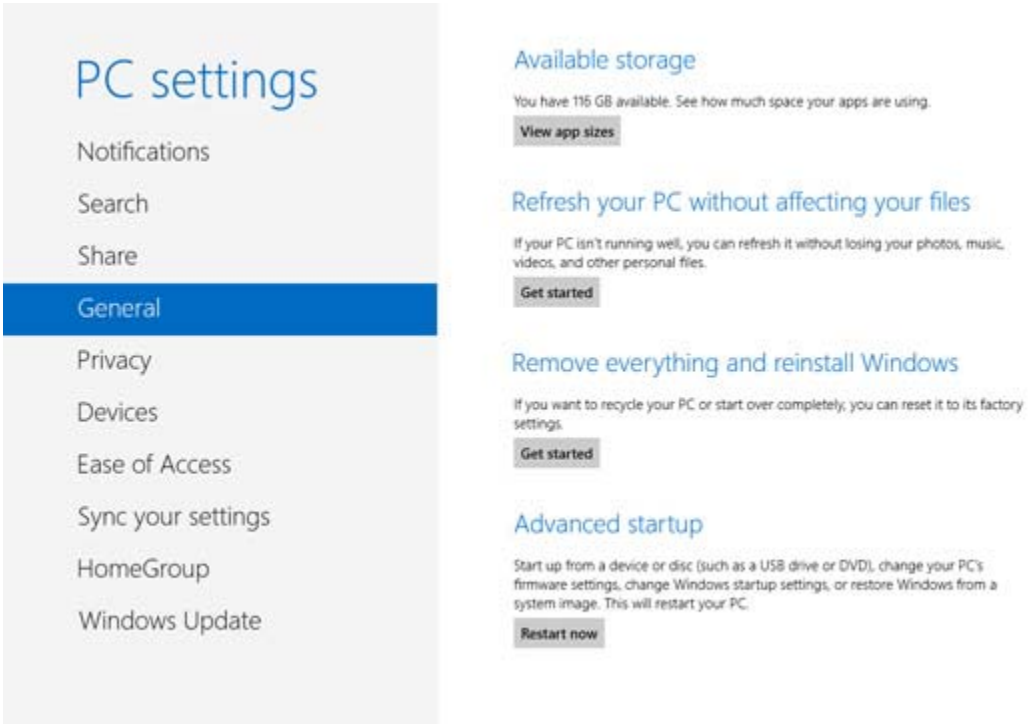
PC settings
Notifications
Search
Share
General
Privacy
Devices
Ease of Access
Sync your settings
HomeGroup
Windows Update
Available storage
You have 116 GB available. See how much space your apps are using.
View app sizes
Refresh your PC without affecting your files
If your PC isn't running well, you can refresh it without losing your photos, music, videos, and other personal files.
Get started
Remove everything and reinstall Windows
If you want to recycle your PC or start over completely, you can reset it to its factory settings.
Get started
Advanced startup
Start up from a device or disc (such as a USB drive or DVD), change your PC's firmware settings, change Windows startup settings, or restore Windows from a system image. This will restart your PC.
Restart now

FIGURE 28. Windows 8 PC Settings.

If the screen doesn't appear as in Fig. 28, the PC Settings may have an update and recovery option where the Advanced startup can be found. See Fig. 29.

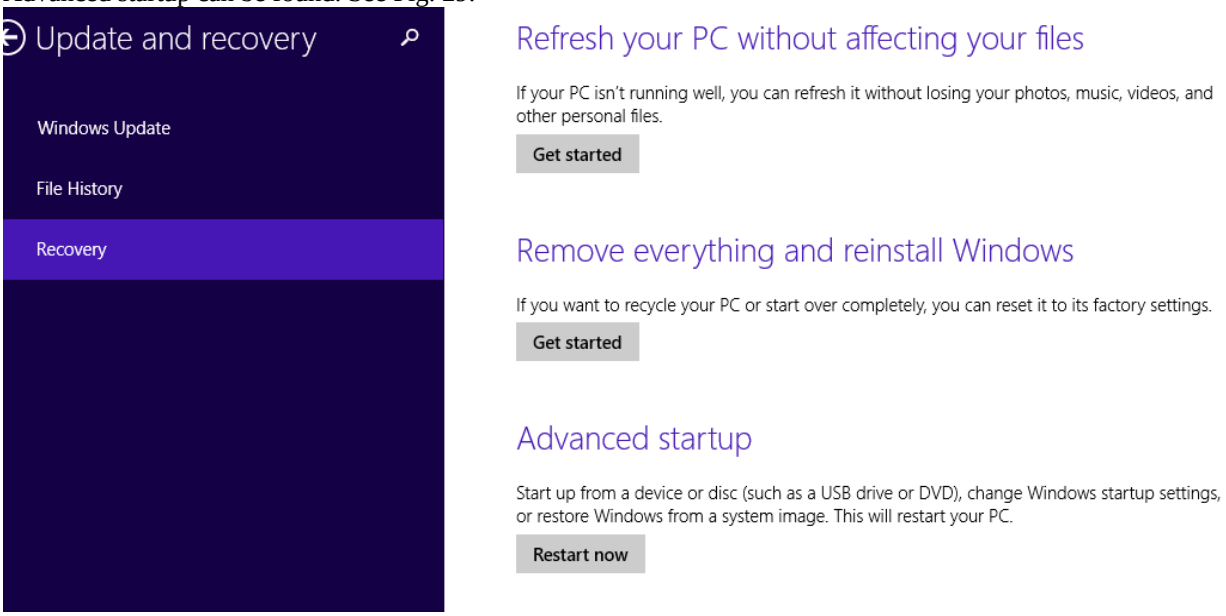
Update and recovery
Windows Update
File History
Recovery
Refresh your PC without affecting your files
If your PC isn't running well, you can refresh it without losing your photos, music, videos, and other personal files.
Get started
Remove everything and reinstall Windows
If you want to recycle your PC or start over completely, you can reset it to its factory settings.
Get started
Advanced startup
Start up from a device or disc (such as a USB drive or DVD), change Windows startup settings, or restore Windows from a system image. This will restart your PC.
Restart now

FIGURE 29. Windows 8 Update and Recovery Menu.

4. Click Restart Now.
5. Click Troubleshoot.

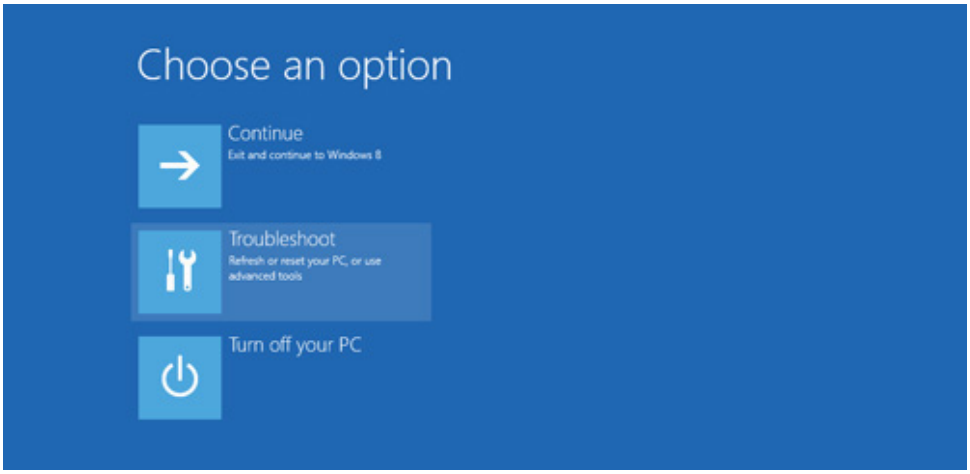
Choose an option
Continue
Exit and continue to Windows 8
Troubleshoot
Refresh or reset your PC, or use advanced tools
Turn off your PC

FIGURE 30. Windows 8 Troubleshoot Button.

6. Click Advanced options.

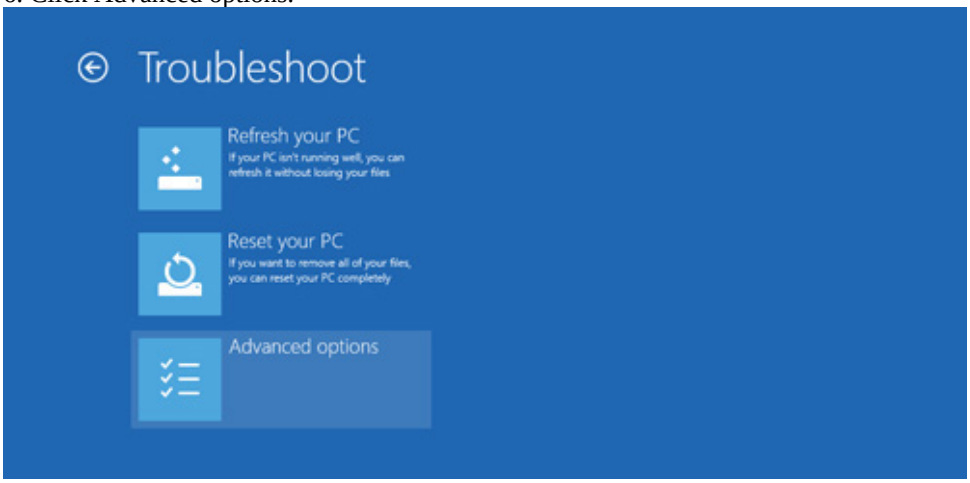
Troubleshoot
Refresh your PC
If your PC isn't running well, you can refresh it without losing your files
Reset your PC
If you want to remove all of your files, you can reset your PC completely
Advanced options

FIGURE 31. Windows 8 Advanced Options Button.

7. Click Startup Settings.

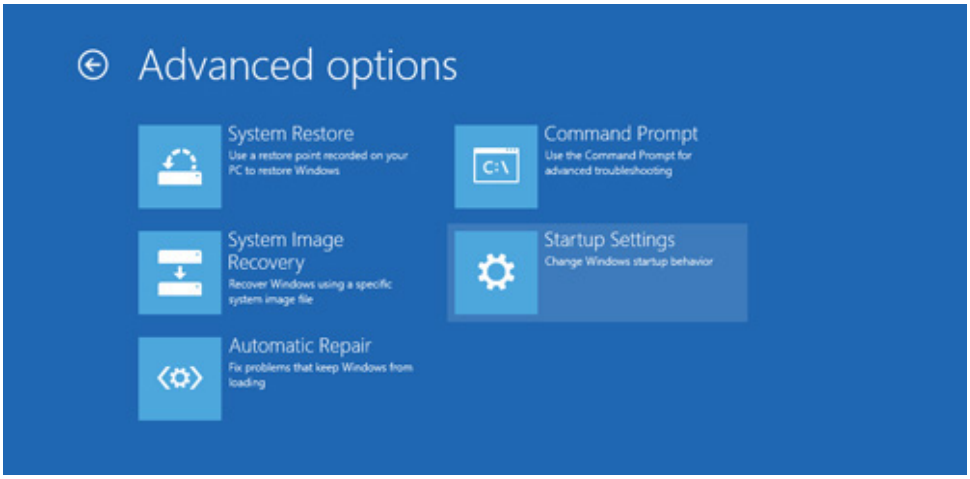
Advanced options
System Restore
Use a restore point recorded on your PC to restore Windows
Command Prompt
Use the Command Prompt for advanced troubleshooting
System Image Recovery
Recover Windows using a specific system image file
Startup Settings
Change Windows startup behavior
Automatic Repair
Fix problems that keep Windows from loading

FIGURE 32. Windows 8 Startup Settings Button.

8. Click Restart. The PC will reboot.

Windows Startup Settings
Restart to change Windows options such as:
• Disable driver signature enforcement
• Disable early-launch anti-malware protection
• Disable automatic restart on system failure
• Enable low-resolution video mode
• Enable debugging mode
• Enable boot logging
• Enable Safe Mode
Restart

FIGURE 33. Windows 8 Windows Startup Settings Menu.

9. In the Startup Settings window, select “7) Disable driver signature enforcement”.

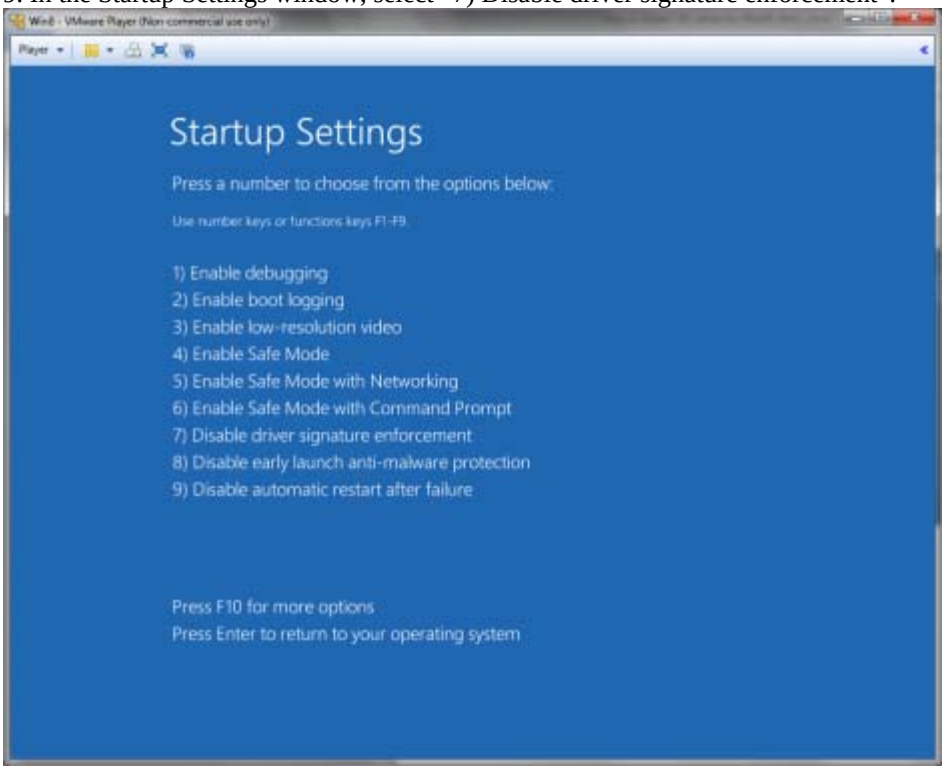
Startup Settings
Press a number to choose from the options below:
Use number keys or functions keys F1-F9.
1) Enable debugging
2) Enable boot logging
3) Enable low-resolution video
4) Enable Safe Mode
5) Enable Safe Mode with Networking
6) Enable Safe Mode with Command Prompt
7) Disable driver signature enforcement
8) Disable early launch anti-malware protection
9) Disable automatic restart after failure
Press F10 for more options
Press Enter to return to your operating system

FIGURE 34. Windows 8 Startup Settings Menu (After PC reboot).

After windows starts continue with the next steps:

10. Plug in the device.
11. Open Device Manager (Select search and enter device manager).

12. Right click “CDC-Echo demo device” and click Update driver software.

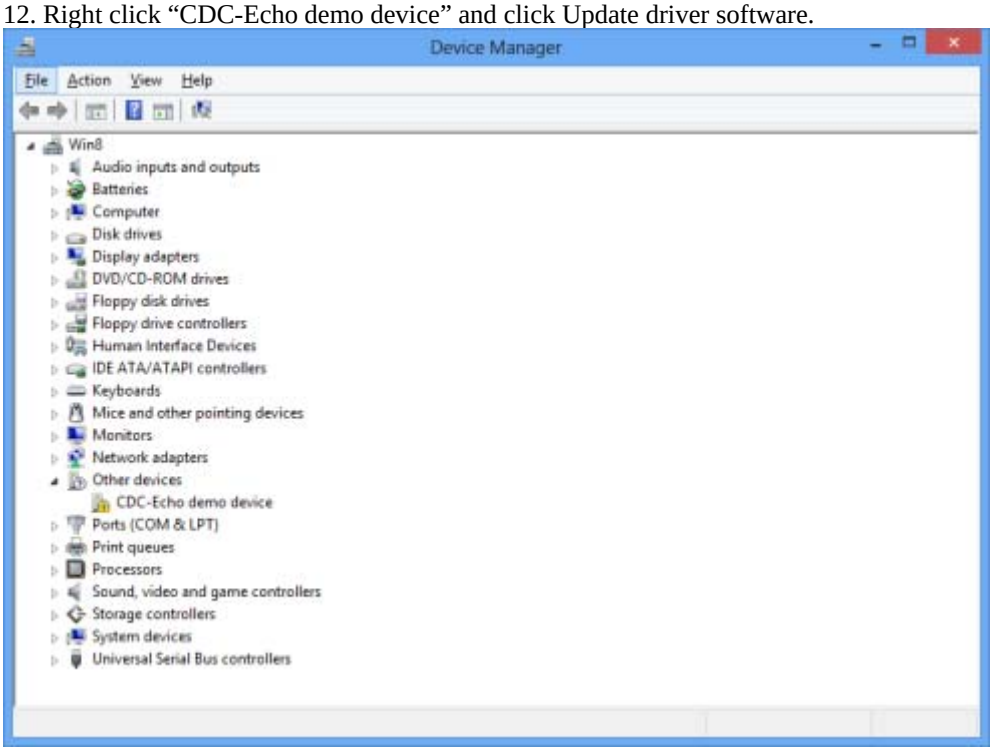

FIGURE 35. Windows 8 Device Manager.

13. Select Browse my computer for driver software.

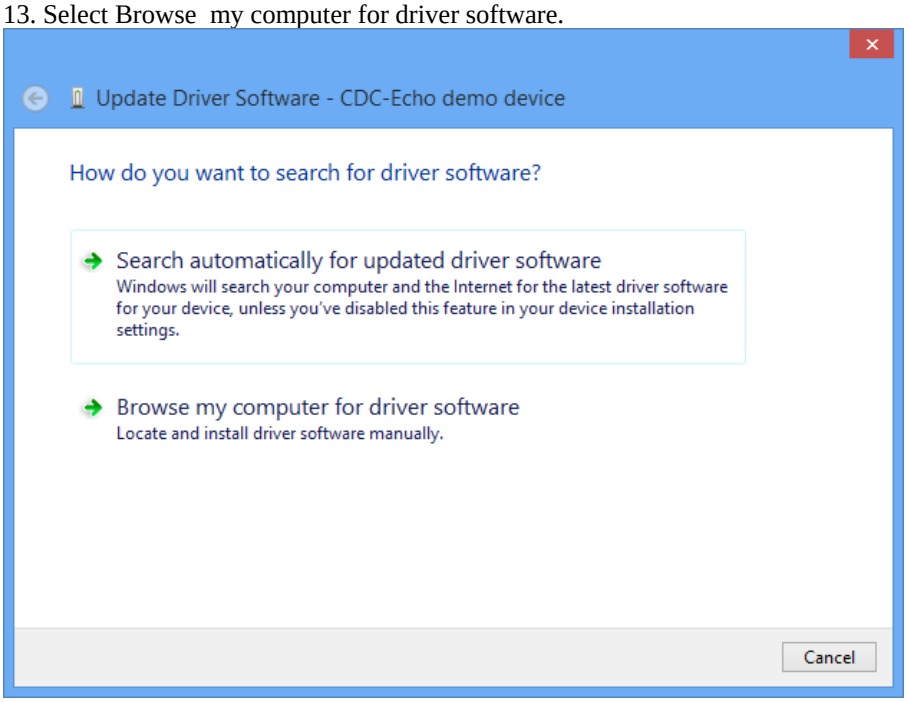
Update Driver Software - CDC-Echo demo device
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
Browse my computer for driver software
Locate and install driver software manually.
Cancel

FIGURE 36. Windows 8 CDC-Echo Demo Device Screen.

14. Enter C:\Program Files (x86) in the dialog box.

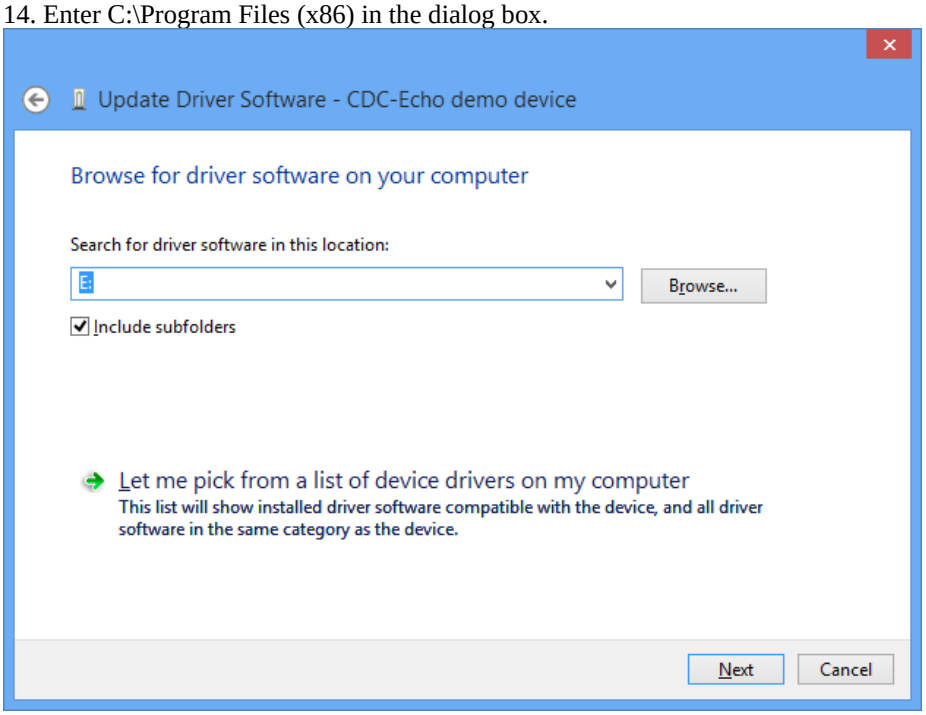
Update Driver Software - CDC-Echo demo device
Browse for driver software on your computer
Search for driver software in this location:
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next
Cancel

FIGURE 37. Windows 8 CDC-Echo Demo Device Browse Screen.

If the following warning appears, select “Install this driver software anyway”.

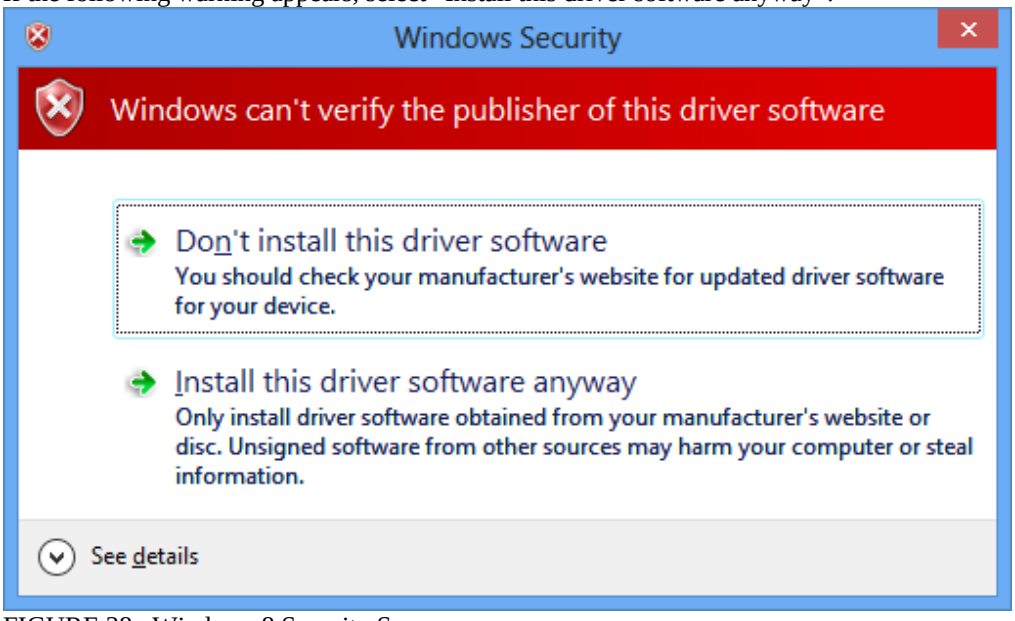
Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

FIGURE 38. Windows 8 Security Screen.

15. If Windows has successfully found the driver software, the following screen will be shown.

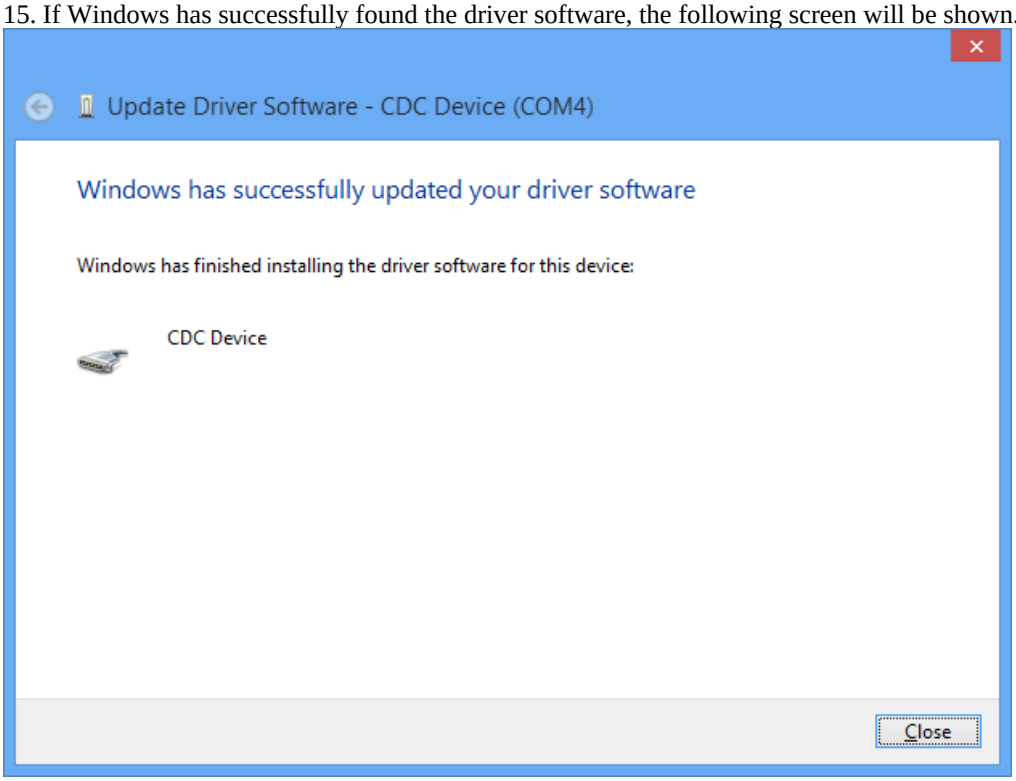
Update Driver Software - CDC Device (COM4)
Windows has successfully updated your driver software
Windows has finished installing the driver software for this device:
CDC Device
Close

FIGURE 39. Windows 8 Driver Software Installed.

16. In the device manager, a CDC Device should now be installed correctly.

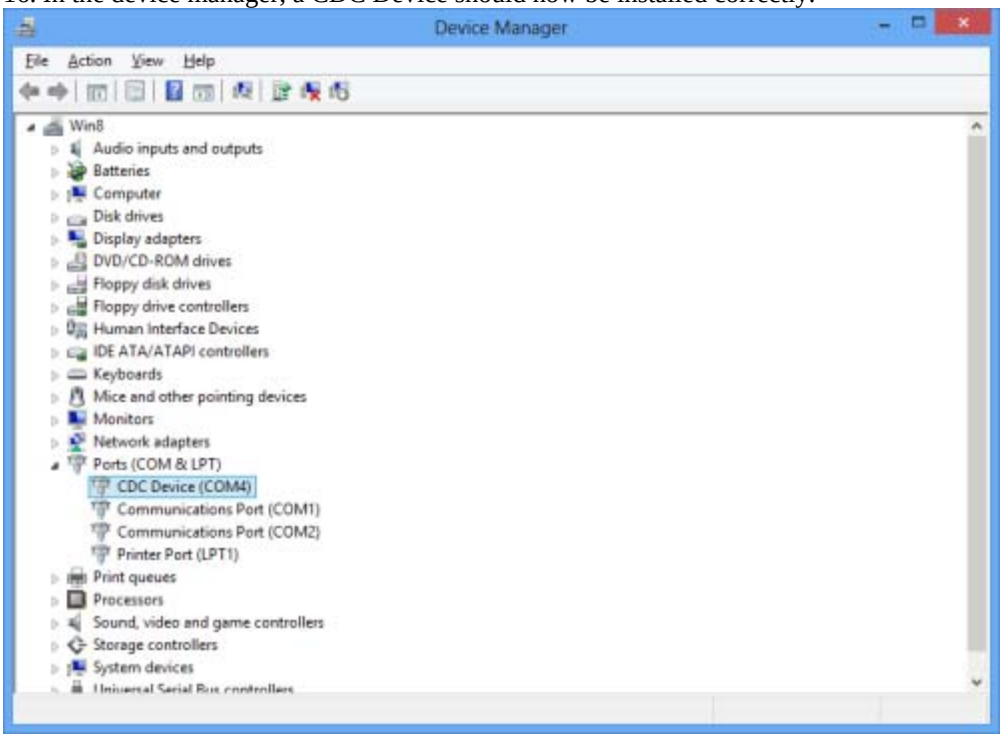

FIGURE 40. Windows 8 Device Manager with Installed CDC Device.

APPENDIX A
SE-MON330 SOFTWARE REVISION HISTORY

MANUAL RELEASE DATE	MANUAL REVISION	SOFTWARE REVISION
June 24, 2015	0-F-062415	3.5
April 2, 2015	0-E-040215	3.4
June 6, 2014	0-D-060614	3.3
December 4, 2013	0-C-120413	3.2
October 17, 2013	0-B-101713	3.1
September 11, 2013	0-A-091113	3.0

MANUAL REVISION HISTORY

REVISION 0-F-062415

SECTION 2

Fig. 4 updated.

REVISION 0-E-040215

SECTION 2

Section 2 updated.

SECTION 3

Sections 3.1 and 3.2 updated.

SECTION 5

Section 5.2 updated, Section 5.3 added.

REVISION 0-D-060614

SECTION 2

Setup procedure updated.

SECTION 5

USB Driver Installation Instructions for Windows 8 added.

REVISION 0-C-120413

SECTION 2

Section 2.6 updated.

SECTION 4

IEC 61850 update process added.

REVISION 0-B-101713

SECTION 2

Added Sections 2.4 and 2.5.

REVISION 0-A-091113

Initial release.

SOFTWARE REVISION HISTORY

SOFTWARE REVISION 3.5

Added support for adjustable resistor-fault trip level.

SOFTWARE REVISION 3.4

Backwards compatibility with all revisions of SE-330.
Added support for geo-magnetic filter and adjustable resistor-fault trip time.

SOFTWARE REVISION 3.3

Added support for Modbus TCP.
Updated user interface.
Added support for remote calibration.

SOFTWARE REVISION 3.2

Added support for IEC 61850 and DeviceNet communications options.

SOFTWARE REVISION 3.1

Added support for communications options.

SOFTWARE REVISION 3.0

Added support for the new revision of SE-330, SE-330HV, and SE-330AU.

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